SERVICE MANUAL

M22ES / M27ES / D22ES / D27ES

notebook

Notebook Computer

M22ES / M27ES / D22ES /D27ES

Service Manual

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the computer.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.
Appendix A, Part Lists
Appendix B, Schematic Diagrams
Appendix C, Updating the FLASH ROM BIOS

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on CD
This describes the computer's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the computer.

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1: Introduction

Overview

This manual covers the information you need to service or upgrade the notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *DOS, Windows 9x, Windows 2000, Windows XP,* etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The notebook computer is designed to be upgradeable. See ***"Disassembly" on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the " " symbol.

The balance of this chapter reviews the computer's technical specifications and features.

System Specifications

AC Adapter Warning

The AC adapter rated at 90W (for desktop CPU) will power a mobile CPU. However, the AC adapter rated at 65W (for mobile CPU) will **NOT** power a desktop CPU.

Mobile or Desktop CPU

The computer designs incorporate both mobile and desktop CPUs. To tell if you have a mobile or desktop CPU model, look at the DC output rating on the bottom of the AC adapter:

- Mobile: DC-Output 20V, 3.25A, 65w
- Desktop: DC-Output 20V, 4.5A, 90w

Processor

Desktop Model

- Intel Pentium 4 Processor - (478-pin) FC-PGA2 package
  (µ0.13) 0.13 Micron Process Technology, 512KB L2 Cache & 400MHz FSB - 1.8~2.4 GHz
- Intel Celeron Processor - (478-pin) FC-PGA2 package
  (µ0.13) 0.13 Micron Process Technology, 256KB L2 Cache & 400MHz FSB - 2.0 GHz

Mobile Model

- Mobile Intel Pentium 4 Processor - (478-pin) Micro-FCPGA package
  (µ0.13) 0.13 Micron Process Technology, 512KB L2 Cache & 400MHz FSB - 1.4~2.4 GHz
- Mobile Intel Celeron Processor - (478-pin) Micro-FCPGA package
  (µ0.13) 0.13 Micron Process Technology, 256KB L2 Cache & 400MHz FSB - 1.4~2.0 GHz

(You can also check the heat sink type to differentiate between the desktop and mobile CPU models.)

Core Logic

- SIS650 + 962L

Structure

- Fully PC99 Compliant
- ACPI 1.0B Compliant

Security

- Security (Kensington® type) Lock Slot
- BIOS Password

Memory

- 64-bit data bus system memory
- Expandable memory up to 1GB (depending 128/256/512MB SODIMM Modules)
- Two 200-pin DDR SODIMM sockets, supporting DDR SDRAM SODIMM (2.5V) - DDR266 compliant

BIOS

- One 4MB Flash ROM
- Phoenix BIOS with Smart Battery, Plug-and-Play (1.0a), ACPI 1.0B

Display

- UMA Architecture with 16/32/64 MB System Memory sharable as Display Memory
- UltraAGP™
- Integrated 128-bit 2D/3D graphics engine
- Motion compensation and IDCT accelerator for DVD Content Playback Accelerator
- Fully DirectX8 compliant graphic engine
- CRT resolution up to 1920 x 1200 x 16M

Video Memory Note: The system allocates or "shares" a portion of system memory for video use. "Shared" memory is user-configurable via the SCU. The default setting is set to **32MB**, and in addition, may be adjusted to **16MB** or **64MB**.

LCD

- 13.3" XGA TFT (1024*768)

  OR
- 14.1" XGA TFT (1024*768)

Storage

- One fixed 3.5" 3-mode FDD
- One changeable drive for DVD-ROM (12.7mmH)/ 24X speed CD-ROM/CD-RW/Combo Drive (DVD-ROM + CD-RW)
- One changeable 2.5" 9.5/12.7mm (h) HDD
  - Supports DMA mode 2
  - Supports PIO mode 4
  - Supports ATA-33/ATA-66/ATA-100 IDE HDD

Audio

- AC'97 2.1 compliant interface
- Compatible with Sound-Blaster PRO™ 16
- Advanced Wavetable Synthesizer
- DirectSound™ 3D Accelerator
- Full-duplex
- Virtual AC3
- Built-in microphone
- Built-in 2 speakers

Keyboard

- A4-Size Win98 keyboard included numeric keypad
- 3 application hot keys for Email, Browser and AP1

PC Card

- One Type II PCMCIA 3.3V/5V socket
- Support CardBus (PC Card95)

Interface

- Built-in TouchPad (PS/2)
- Dual USB2.0 ports (USB1.1 compatible)
- One IEEE 1394 port
- One parallel port (LPT1), supporting ECP / EPP 1.7 and 1.9
- One external CRT monitor port
- One external keyboard/mouse (PS/2 type) port
- One speaker-out jack
- One microphone-in or S/PDIF output jack for Y- cable
- One RJ-11 jack for modem
- One RJ-45 jack for 100M/10M LAN
- One DC-in jack

Communication

- 10/100Mb Ethernet LAN on board
- 56K MDC modem V.90 compliant (V.92 upgradeable by S/W Driver)
- Wireless Infrared transfer IrDA 1.1, 1cm~1M operating distance, 4Mbps FIR

Power Management

- Supports ACPI v1.0B
- Supports APM v1.2
- Soft Off by system power button
- Supports suspend to disk
- Battery low suspend
- Resume from alarm time

AC Adapter Warning

The AC adapter rated at 90W (for desktop CPU) will power a mobile CPU. However, the AC adapter rated at 65W (for mobile CPU) will **NOT** power a desktop CPU.

Power

Desktop Model

- Full range AC adapter
  AC Input: 100~240V, 47~63Hz
  DC Output: 20V, 4.5A, 90W
- Supports smart Lithium-Ion battery

Mobile Model

- Full range AC adapter
  AC Input: 100~240V, 47~63Hz
  DC Output: 20V, 3.25A, 65W
- Supports smart Lithium-Ion battery

Indicators

- LED indicators (HDD, Power status, FDD status, Num Lock, Caps Lock, Scroll Lock, AC, Battery Icon)

Environmental Spec

- Temperature
- Operating: 5°C~ 35°C
- Non-Operating: -20°C ~ 60°C

Relative Humidity
Operating: 20% ~ 80%
Non-Operating: 10% ~ 90%

Physical Dimensions

- 308 (w) x 254 (d) x 37.5 (h) mm

Weight

- 2.9 kg ~ 3.25 kg (with battery)

Optional

- DVD-ROM Drive (12.7mmH)
- CD-RW Drive (12.7mmH)
- Combination Drive (DVD-ROM and CD-RW, 12.7mmH)
- Software DVD player
- Smart Lithium-Ion battery pack

External Locator - Top Views

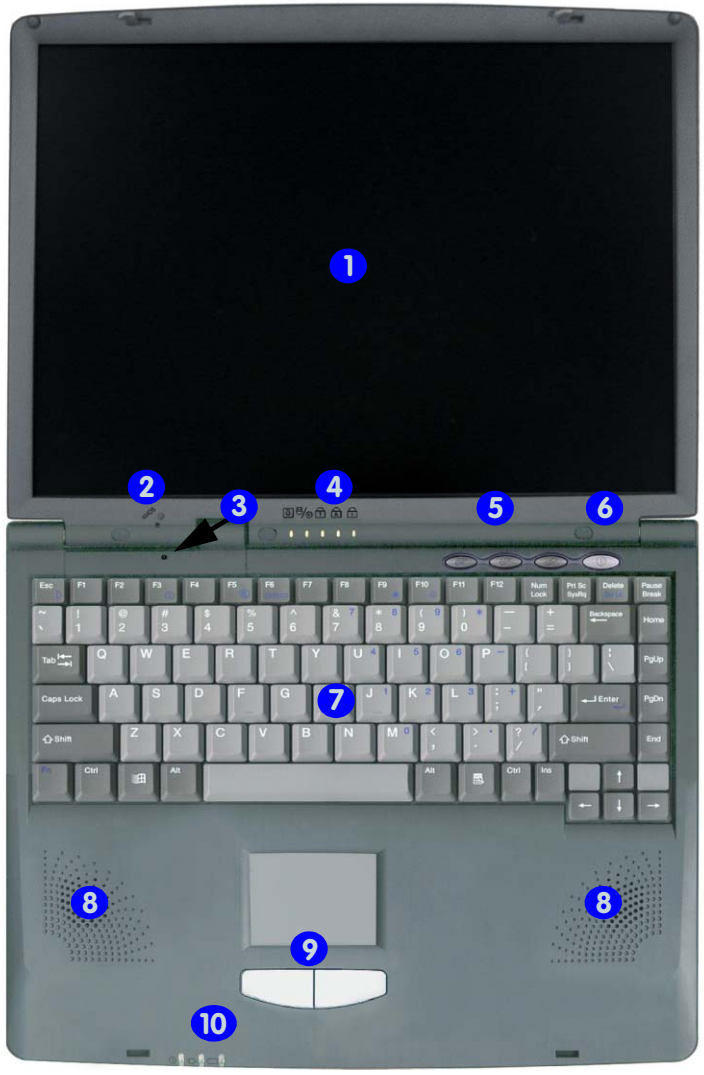


Figure 1
Top Views

1. LCD Panel
2. Microphone (built-in)
3. Close Cover Switch
4. LED Status Indicators
5. Hot-Key Buttons
6. Power Button
7. Keyboard
8. Speakers
9. TouchPad and Buttons
10. LED Power Indicators
11. LCD Latch

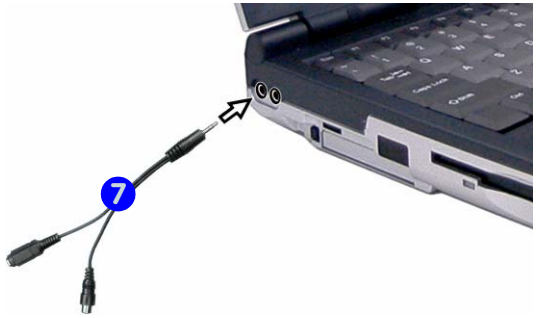
External Locator - Right Side View & Left Side View

Figure 2
Right Side View

1. Security Lock Slot
2. Vent
3. CD Device

Figure 3
Left Side View

1. S/PDIF Out Port/ Microphone-In Jack
2. Headphone-Out Jack
3. Volume Control Knob
4. PC Card Slot
5. Infrared Transceiver
6. Floppy Disk Drive
7. Y-cable for S/PDIF Out/Microphone-In



External Locator - Rear & Bottom Views

Figure 4
Rear View

1. DC-In Jack
2. PS/2 Type Port
3. Parallel Port
4. RJ-11 Phone Jack
5. Vent
6. External Monitor (CRT) Port
7. Dual USB Ports
8. S-Video Port
9. IEEE 1394 Port
10. RJ-45 LAN Jack

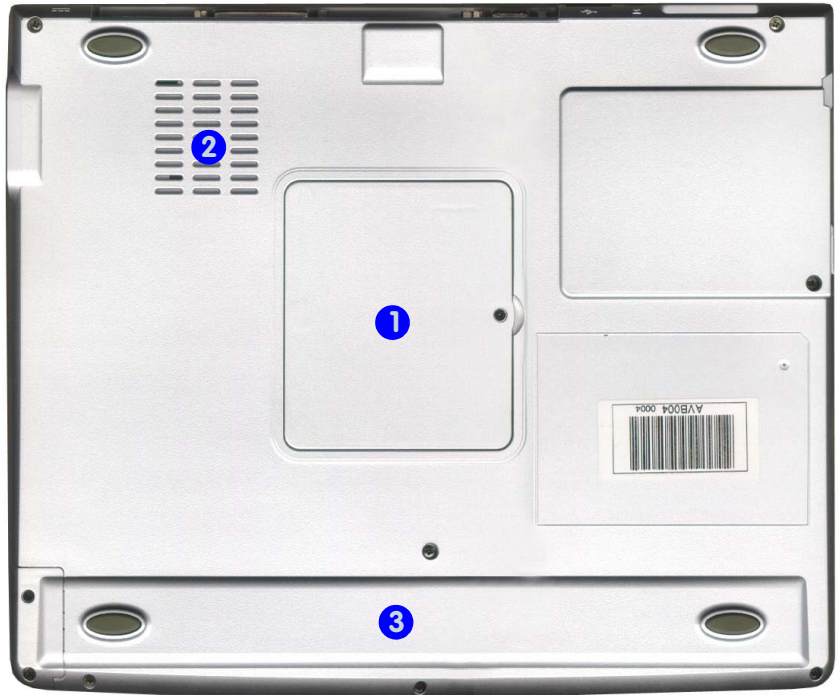


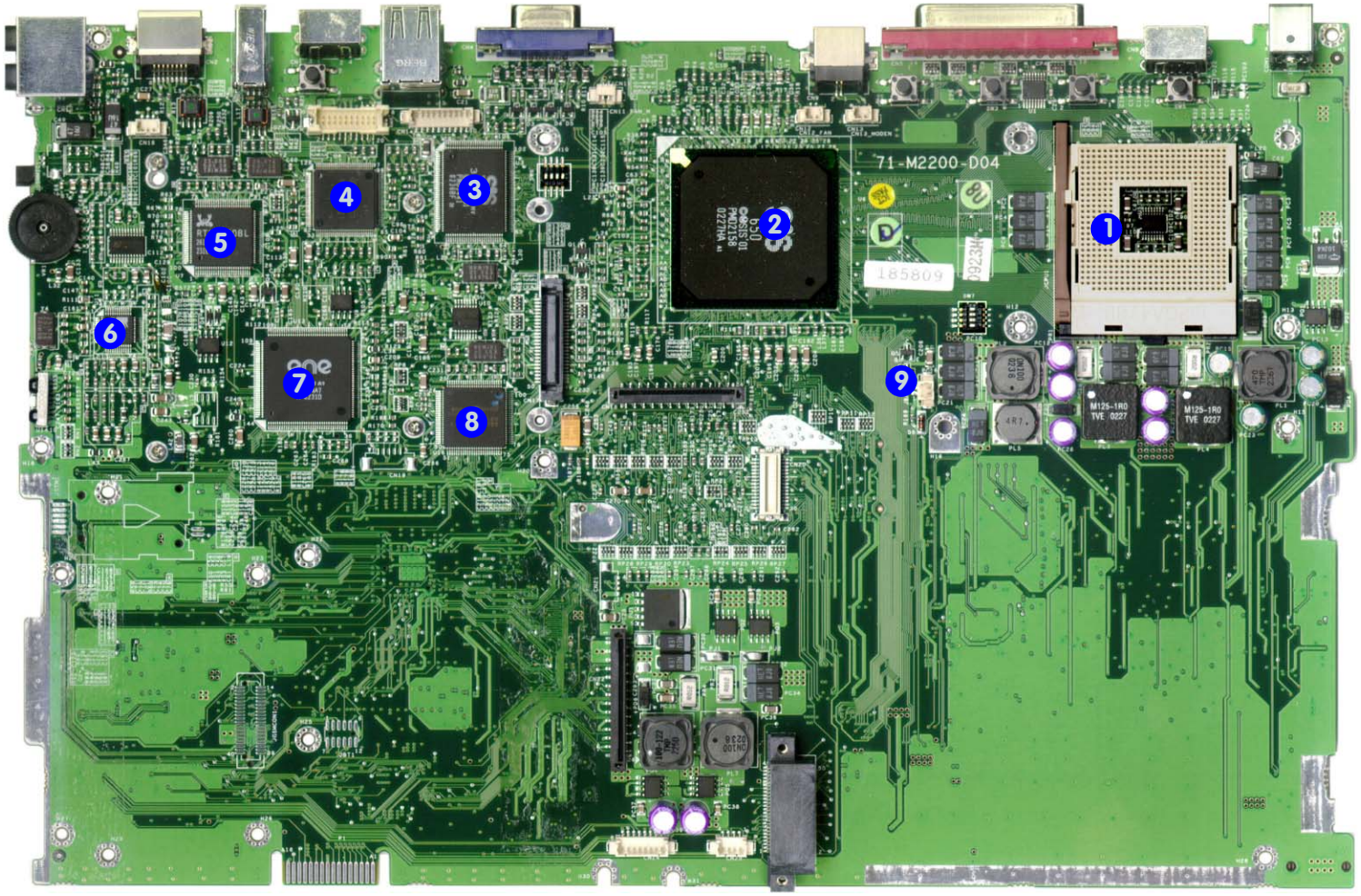
Figure 5
Bottom View

1. RAM Cover
2. Vent/Fan Outlets
3. Battery

Mainboard Overview - Top

Key Parts

Figure 6
Mainboard Overview - Top Key Parts



1. CPU Socket (no CPU Installed)
2. Northbridge SiS 650
3. SiS 301 (LVDS Interface)
4. TSB41AB21 - 1394 PHY (IEEE1394 Controller)
5. RTL8100BL LAN Controller
6. ALC201 - AC'97 Audio Codec
7. Cardbus Controller
8. H8 Keyboard Controller
9. CMOS Battery

Mainboard Overview - Bottom

Key Parts

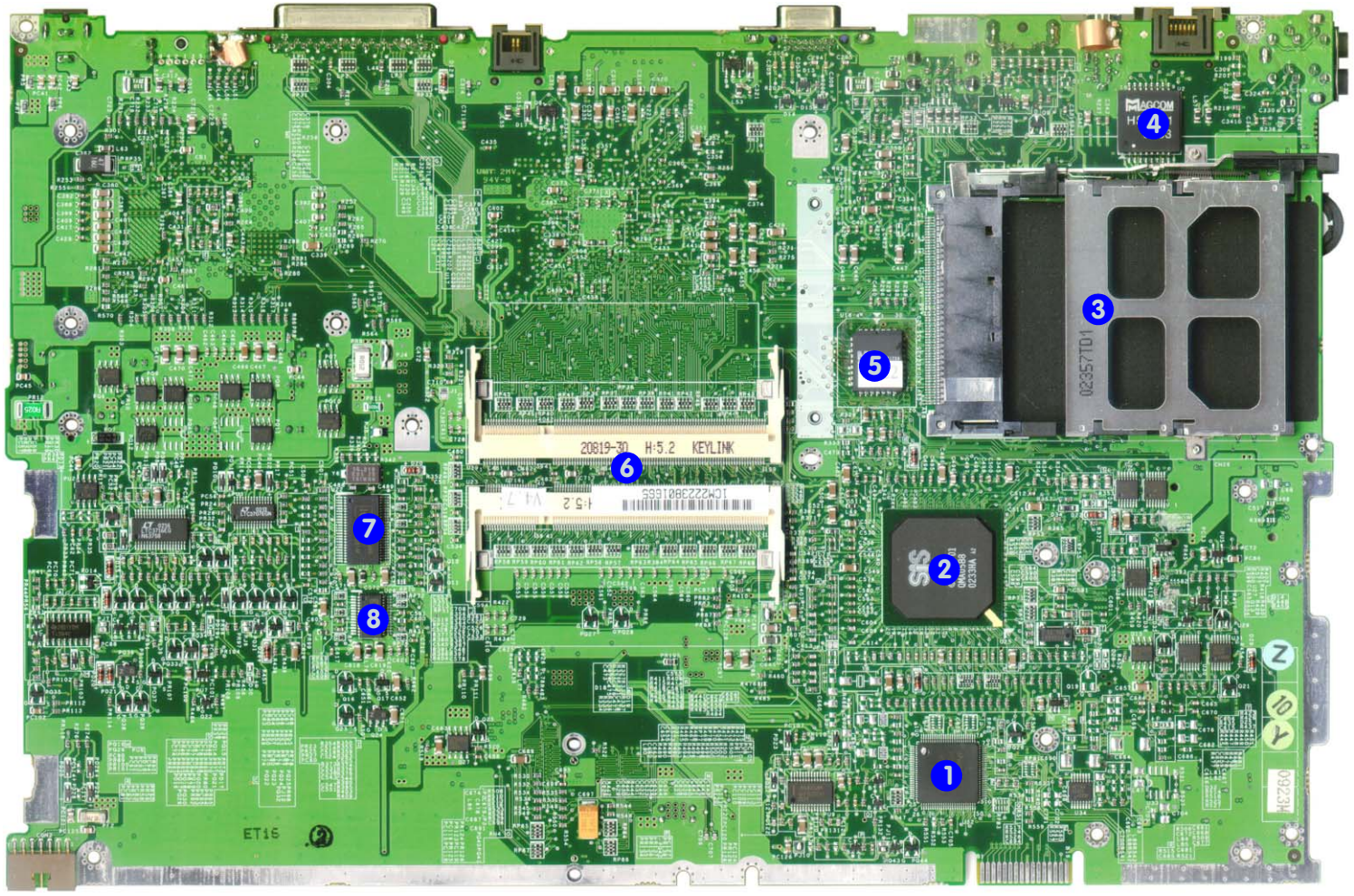


Figure 7
Mainboard Overview - Bottom Key Parts

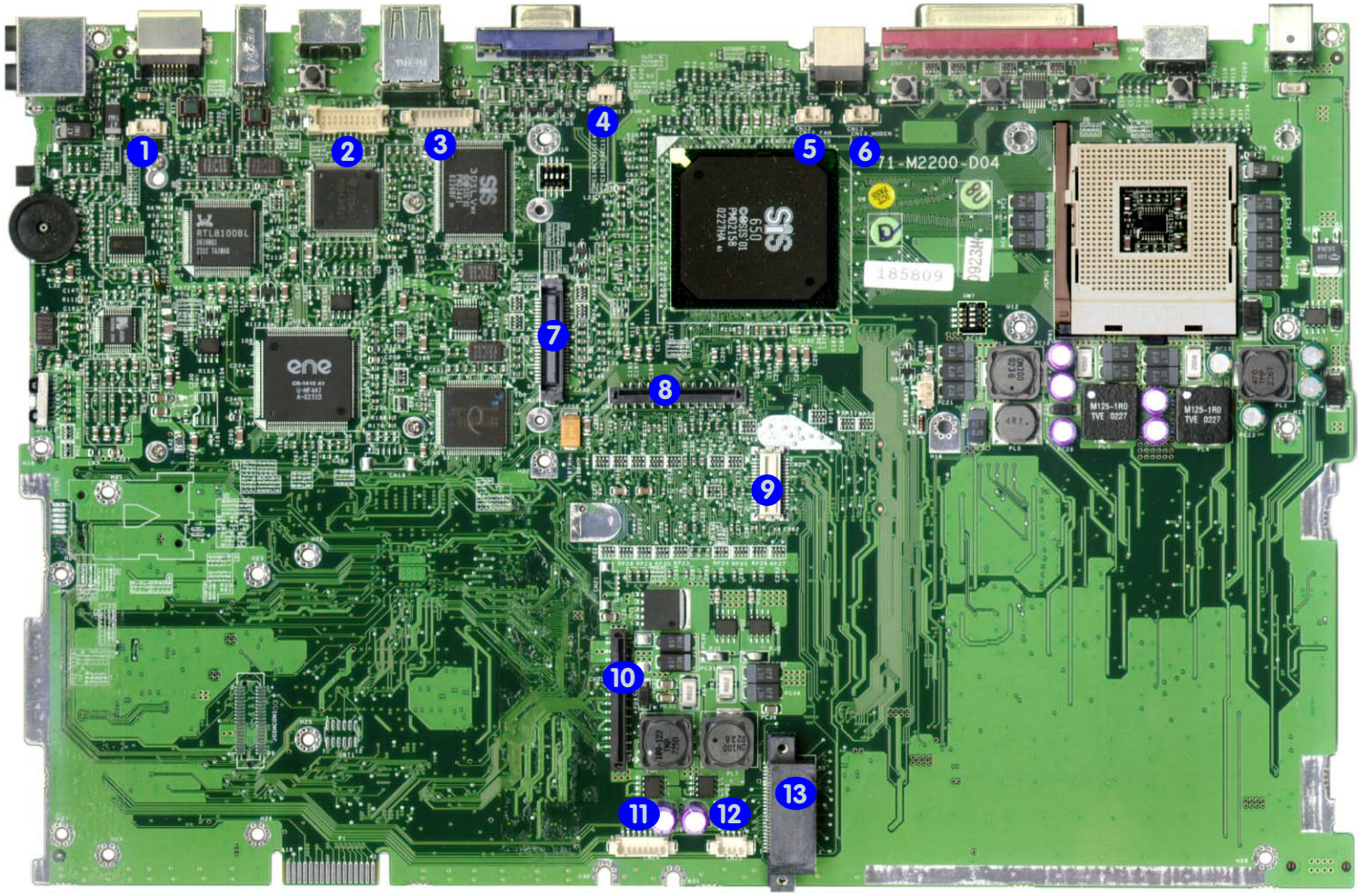
1. Super I/O Controller
2. Southbridge SiS 961
3. PCMCIA
4. LAN Transformer
5. Flash BIOS ROM
6. 2 * DIMM Sockets
7. Clock Generator
8. Clock Buffer

Mainboard Overview - Top

Cable Connectors and Switches

Figure 8
Mainboard Top Cable Connectors & Switches

1. CN16 (Microphone Cable)
2. CN15 (LCD Cable)
3. CN14 (Inverter Cable)
4. CN11 (CPU Fan Cable)
5. CN12 (CPU Fan Cable)
6. CN13 (Modem Cable)
7. CN17 (HDD Connector)
8. CN18 (Keyboard Connector)
9. CN20 (Modem Module)
10. CN22 (FDD Cable)
11. CN24 (Touchpad Cable)
12. CN25 (Speaker Cable)
13. CN23 (CDROM Connector)



Mainboard Overview - Bottom

Cable Connectors and Switches

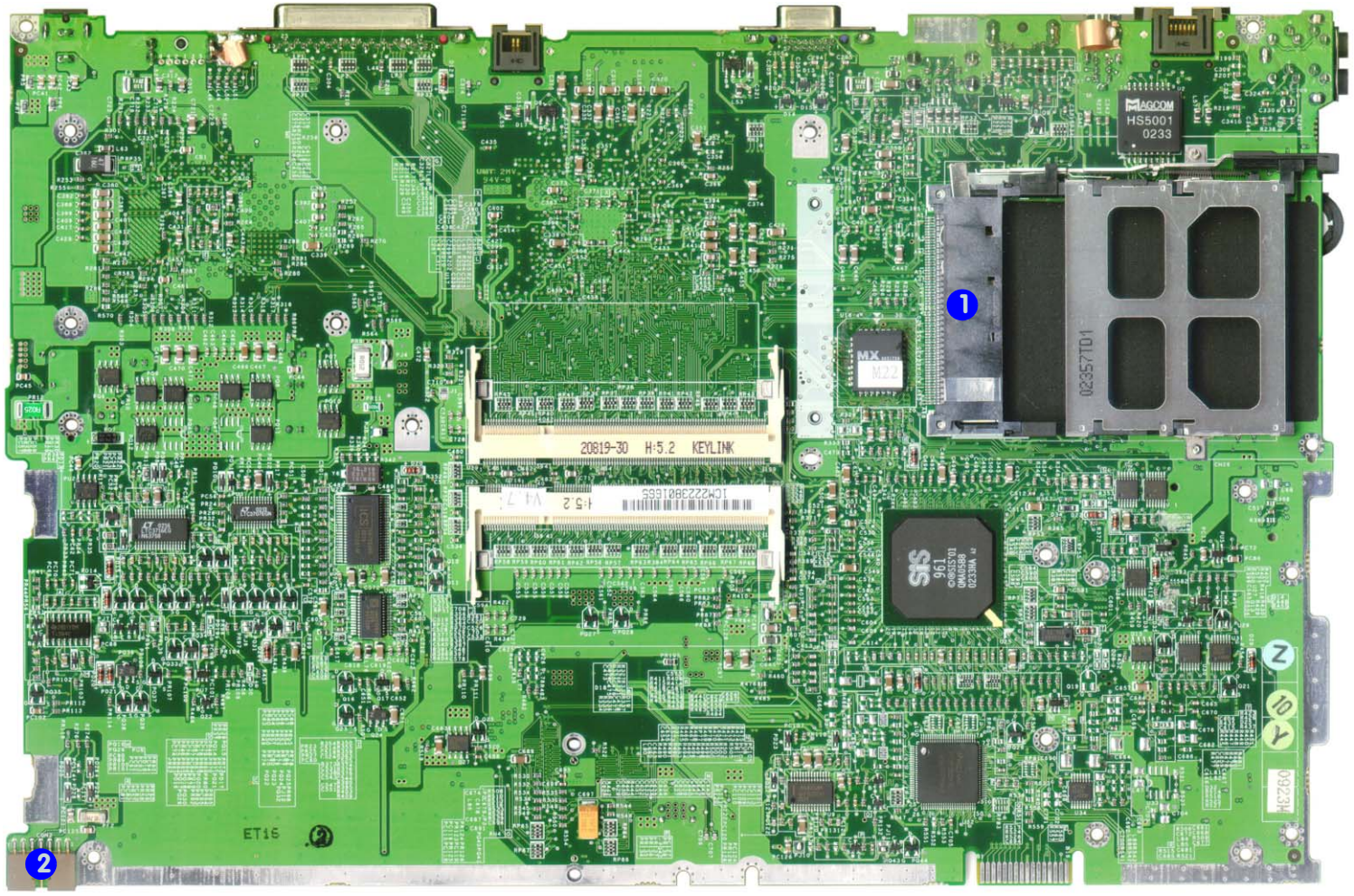


Figure 9
Mainboard Bottom Cable Connectors & Switches

1. PCMCIA Module
2. Battery Connector

2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

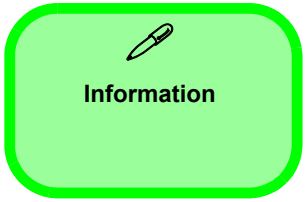
We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a will provide any possible helpful information. A box with a contains warnings.

An example of these types of boxes are shown in the sidebar.



NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

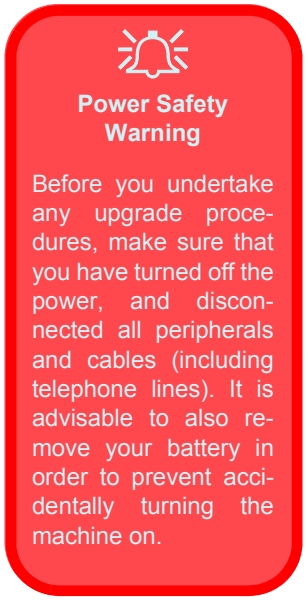
Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.


Power Safety Warning
Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery *page 2 - 6*

To remove the System Memory:

1. Remove the battery *page 2 - 6*
2. Remove the memory *page 2 - 7*

To remove the Keyboard:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*

To remove the HDD:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*

To remove the CPU:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the CPU *page 2 - 10*

To remove the Modem:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the modem *page 2 - 12*

To remove the CD Device:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the CD device *page 2 - 12*

To remove the Bottom Case:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*
4. Remove the CPU *page 2 - 10*
5. Remove the CD device *page 2 - 12*
6. Remove the bottom case *page 2 - 13*

To remove the FDD:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*
4. Remove the CPU *page 2 - 10*
5. Remove the modem *page 2 - 12*
6. Remove the CD device *page 2 - 12*
7. Remove the bottom case *page 2 - 13*
8. Remove the FDD *page 2 - 15*

To remove the Mainboard:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*
4. Remove the CPU *page 2 - 10*
5. Remove the modem *page 2 - 12*
6. Remove the CD device *page 2 - 12*
7. Remove the bottom case *page 2 - 13*
8. Remove the FDD *page 2 - 15*
9. Remove the mainboard *page 2 - 16*

To remove the Inverter:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*
4. Remove the CPU *page 2 - 10*
5. Remove the modem *page 2 - 12*
6. Remove the CD device *page 2 - 12*
7. Remove the bottom case *page 2 - 13*
8. Remove the inverter *page 2 - 17*

To remove the LCD Panel:

1. Remove the battery *page 2 - 6*
2. Remove the keyboard *page 2 - 8*
3. Remove the HDD *page 2 - 9*
4. Remove the CPU *page 2 - 10*
5. Remove the modem *page 2 - 12*
6. Remove the CD device *page 2 - 12*
7. Remove the bottom case *page 2 - 13*
8. Remove the inverter *page 2 - 17*
9. Remove the LCD *page 2 - 18*

Figure 2 - 1
Battery Removal Sequence

a. Remove the two screws and release the battery cover.
b. Release connector and pull battery out.

Removing the Battery

1. Turn the computer **OFF** and turn it over.
2. Remove screws 1 - 2 in *Figure 2 - 1a* and release the battery cover 3.
3. Separate the battery connector 4 from the computer and pull the battery 5 out.

a.

b.

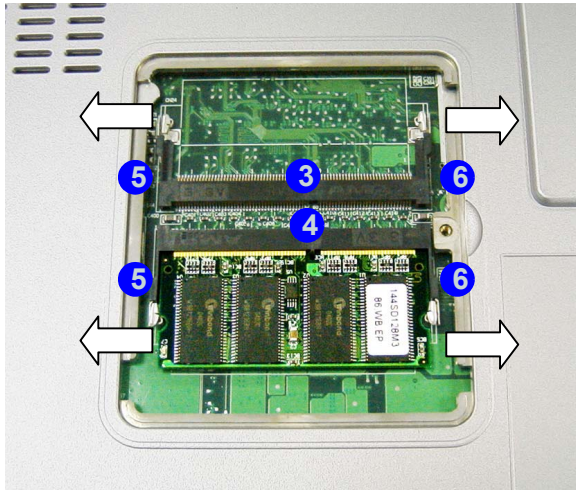
5. Battery
- 2 Screws

Removing the System Memory

1. Turn the computer **OFF**, remove the battery (*page 2 - 6*).
2. Remove screw 1 from the RAM cover (*Figure 2 - 2a*), and lift the cover 2 up off the computer.
3. Locate the memory sockets 3 & 4 (*Figure 2 - 2b*), and gently pull the latches 5 & 6 on the memory socket toward the sides of the computer as indicated.
4. The module 7 (*Figure 2 - 2c*) will pop-up, and you can remove it.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.

a.

b.



c.

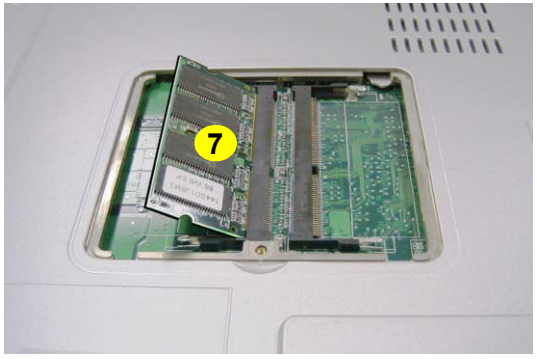


Figure 2 - 2
Memory Removal Sequence

a. Remove the screw, then remove the RAM cover.
b. Pull the latch(es) on the memory sockets to release the module(s).
c. When the module pops up, lift it out.

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

2. RAM cover
7. Memory module(s)

- 1 Screw

Figure 2 - 3
Keyboard Removal Sequence

a. Press the four latches to release the keyboard.
b. Lift the keyboard out and disconnect the cable from the locking collar.

Re-Inserting the Keyboard

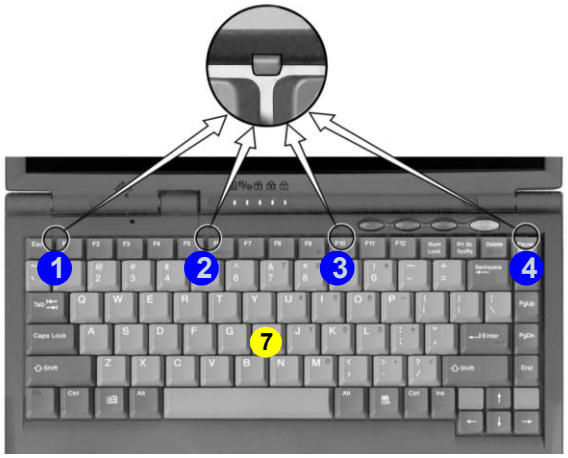
When re-inserting the keyboard firstly align the **four** keyboard tabs (***Figure 2 - 3c***) at the bottom of the keyboard with the slots in the case.

7. Keyboard

Removing the Keyboard

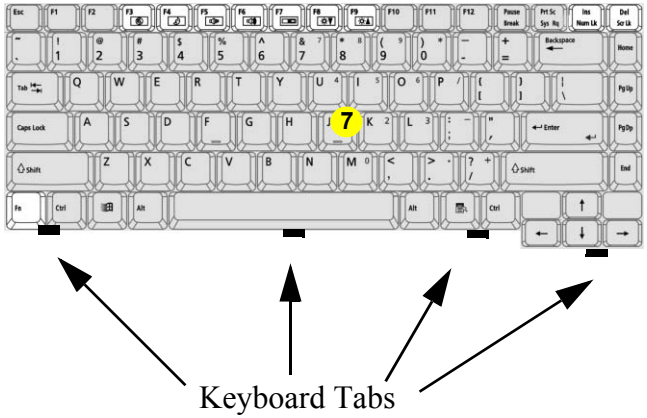
1. Turn the computer **OFF** and remove the battery (***page 2 - 6***).
2. Press the **four** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
3. Carefully lift the keyboard 7 up and out, being careful not to bend the keyboard ribbon cable 5 (***Figure 2 - 3b***).
4. Disconnect the keyboard ribbon cable from the locking collar socket 6 (***Figure 2 - 3b***).

a.



b.

c.



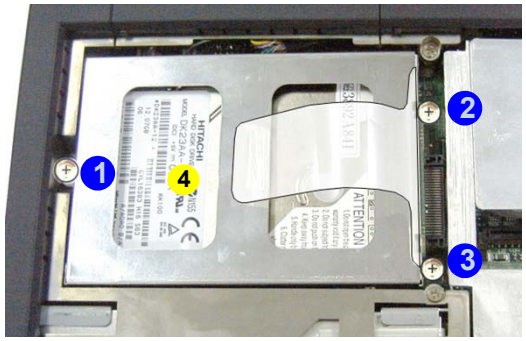
Removing the Hard Disk Drive

1. Turn the computer **OFF**, remove the battery (*page 2 - 6*) and keyboard (*page 2 - 8*).
2. Remove screws 1 - 3 (*Figure 2 - 4a*) which secure the HDD assembly 4 to the computer.
3. Lift the HDD assembly out of the computer by pulling on the HDD tab 5 (*Figure 2 - 4b*).
4. Remove screws 6 - 11 (*Figure 2 - 4c*) and separate the HDD 12 from the case 13, and disconnect the HDD connector board 14.
5. Just reverse the removal procedure to install the new HDD.

Figure 2 - 4
Hard Disk Removal Sequence

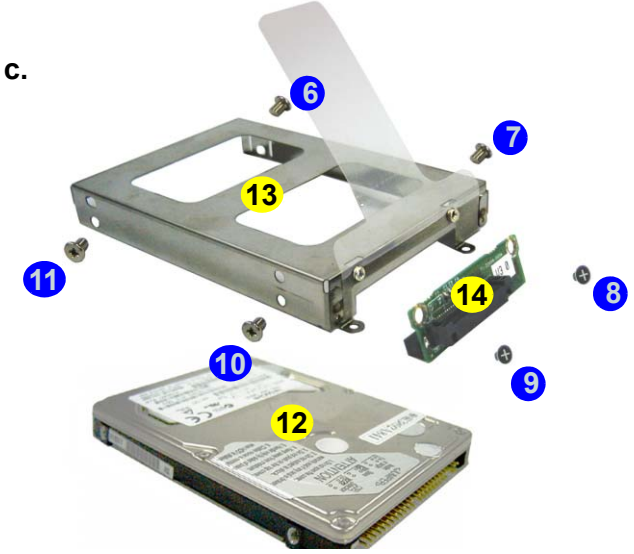
a. Remove the three screws and release the HDD cable.
b. Remove the HDD assembly.
c. Remove the six screws and HDD connector board.

a.



b.

c.



HDD Cables

The illustrated HDD cable may differ from the one in your model depending on the configuration purchased.

Be careful not to bend the pins on the hard disk when removing the cable.

12. HDD
13. HDD case
14. HDD connector Board

- 9 Screws

Removing the CPU

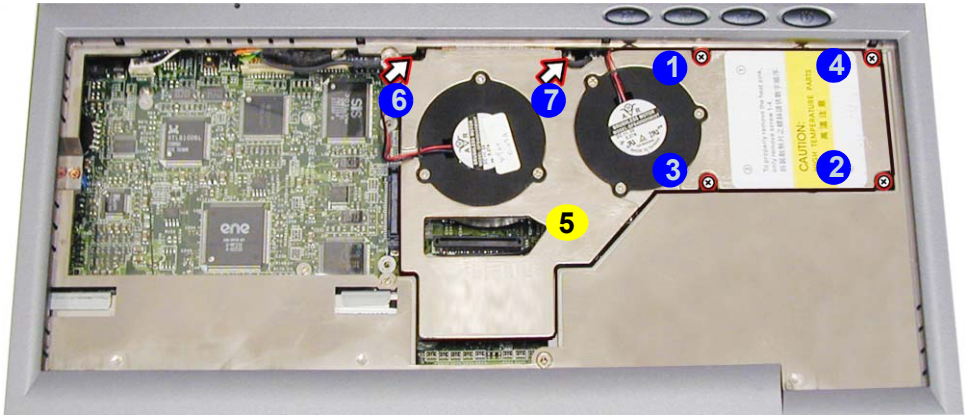
1. Turn the computer **OFF**, remove the battery (*page 2 - 6*) and keyboard (*page 2 - 8*).
2. Remove the **four** screws from the heat sink 5 in order 1 - 4 as indicated (*Figure 2 - 5a*).
3. Release the fan cable(s) 6 & 7 accordingly and remove the heat sink.

Figure 2 - 5
Processor Removal Sequence

a. Remove the four screws from the heat sink in **the order indicated**.
b. Release the fan cables.

Note: The heat sink for the Mobile CPU is thicker than the heat sink for the Desktop CPU (see *Figure 2 - 5b*).

a.



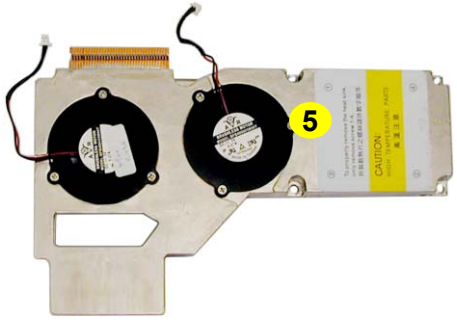
Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

Reassembly Screw Order

When replacing the heat sink, make sure you insert the screws in the same order indicated in *Figure 2 - 5a*.

b.



Desktop CPU Model

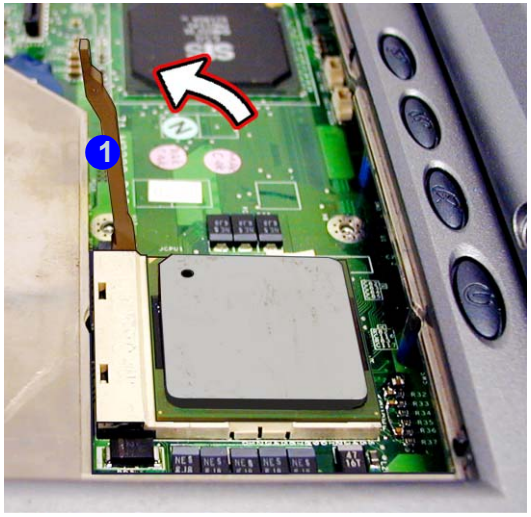
Mobile CPU Model

5. Heat Sink

- 4 Screws

4. Fully raise latch 1 in the direction indicated in ***Figure 2 - 6a*** to unlock the CPU.
5. Carefully (it may be hot) lift the CPU 2 up out of the socket (***Figure 2 - 6b***).
6. When re-inserting the CPU pay careful attention to the pin alignment, it will fit only one way (don't force it!).

a.



b.

Figure 2 - 6
Processor Removal Sequence (Cont.)

a. Raise the latch to unlock the CPU.
b. Lift the CPU out of the socket.

2. CPU

Figure 2 - 7
Modem Removal Sequence

Remove the screws, lift the modem off the mainboard, and disconnect the cable.

3. Modem
4. Modem cable

- 2 Screws

Removing the Modem

1. Turn the computer **OFF**, remove the battery (*page 2 - 6*) and keyboard (*page 2 - 8*).
2. Remove screws 1 - 2 and carefully lift the modem 3 up off the mainboard (*Figure 2 - 7*).
3. Disconnect the modem cable 4 from the modem module.

Figure 2 - 8
CD Device Removal Sequence

Remove the screw, and slide the CD device out of the computer.

3. CD device

- 1 Screw

Removing the CD Device

1. Turn the computer **OFF**, remove the battery (*page 2 - 6*) and keyboard (*page 2 - 8*).
2. Remove screw 1 and apply gentle but firm pressure at point 2 to slide the CD device 3 out of the computer (*Figure 2 - 8*).

Removing the Bottom Case

1. Remove the battery (*page 2 - 6*), keyboard (*page 2 - 8*), hard disk assembly (*page 2 - 9*), CPU (*page 2 - 10*) and CD device (*page 2 - 12*).
2. Turn the computer over and remove screws 1 - 11 (*Figure 2 - 9*).

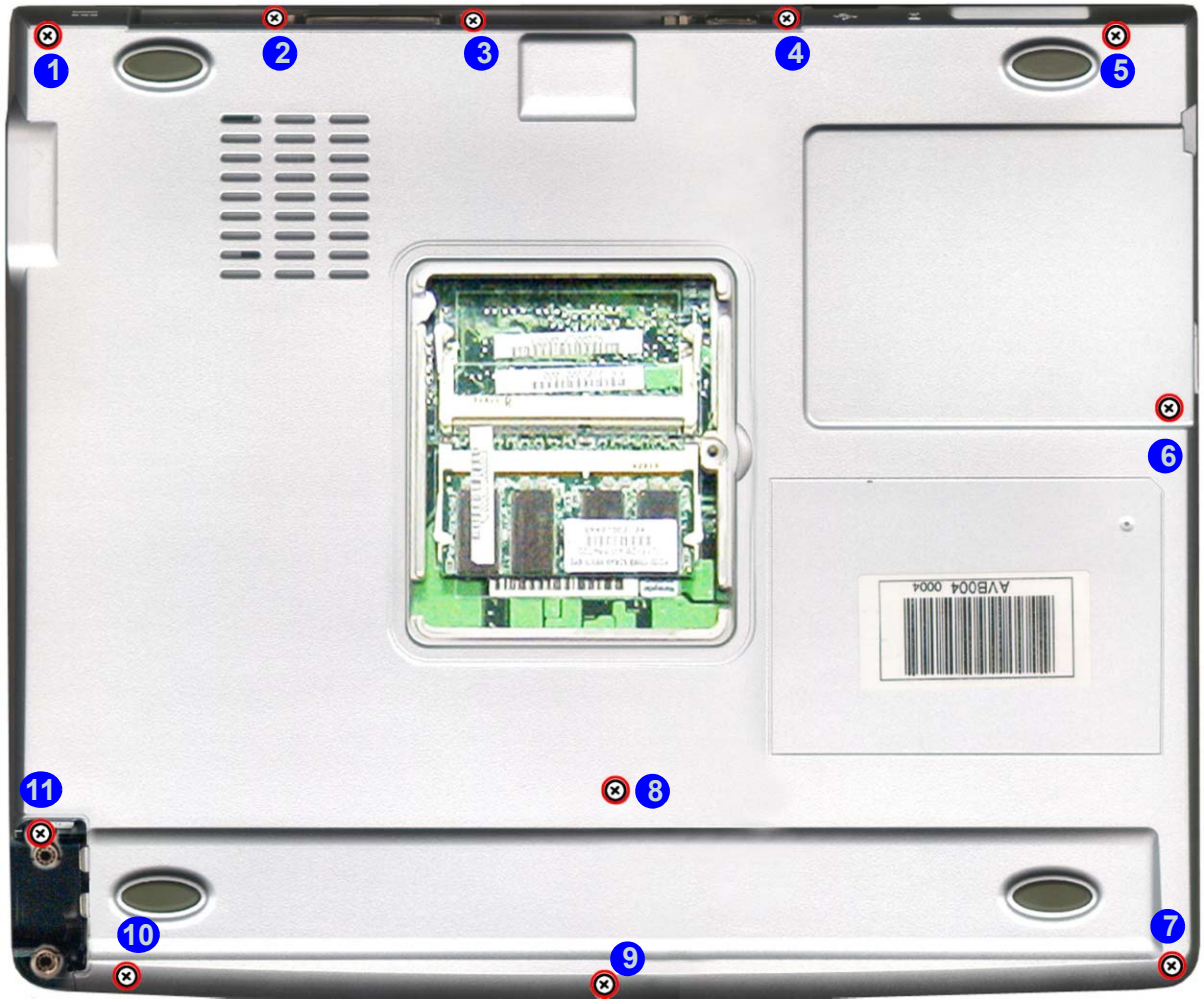


Figure 2 - 9
Bottom Case Removal Sequence

Remove the 11 screws from the bottom of the case.

- 11 Screws

Figure 2 - 10
Bottom Case Removal Sequence (Cont.)

a. Remove the screw located inside the CD drive.
b. Remove the screws from the rear of the computer.

- 5 Screws

3. Remove screw 1 located inside the CD drive (***Figure 2 - 10a***) on the right side of the computer.
4. Turn the computer around and remove screws 2 - 5 (***Figure 2 - 10b***) from the rear of the computer.

a.

b.

5. Remove screws 1 (***Figure 2 - 11a***) and 2 (***Figure 2 - 11b***).
6. Disconnect the inverter cable 3, LCD cable 4 and microphone cable 5 (***Figure 2 - 11b***).
7. Carefully lift the LCD and top case assembly off the bottom case assembly.

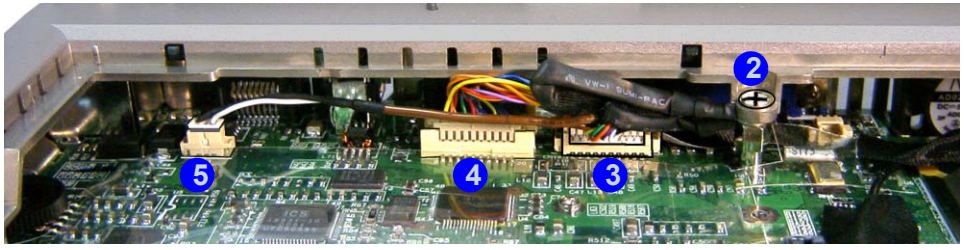
Figure 2 - 11
Bottom Case Removal Sequence (Cont.)

a. Remove the 2 screws.
b. Disconnect the inverter, LCD and microphone cables.

- 2 Screws

a.

b.



Removing the Floppy Disk Drive Assembly

1. Remove the battery (*page 2 - 6*), keyboard (*page 2 - 8*), hard disk assembly (*page 2 - 9*), CPU (*page 2 - 10*), modem (*page 2 - 12*), CD device (*page 2 - 12*) and bottom case (*page 2 - 13*).
2. Remove screw 1 and hex nut 2 from the FDD assembly.
3. Carefully disconnect the FDD cable 3 and lift the FDD assembly 4 off the mainboard (*Figure 2 - 12*).

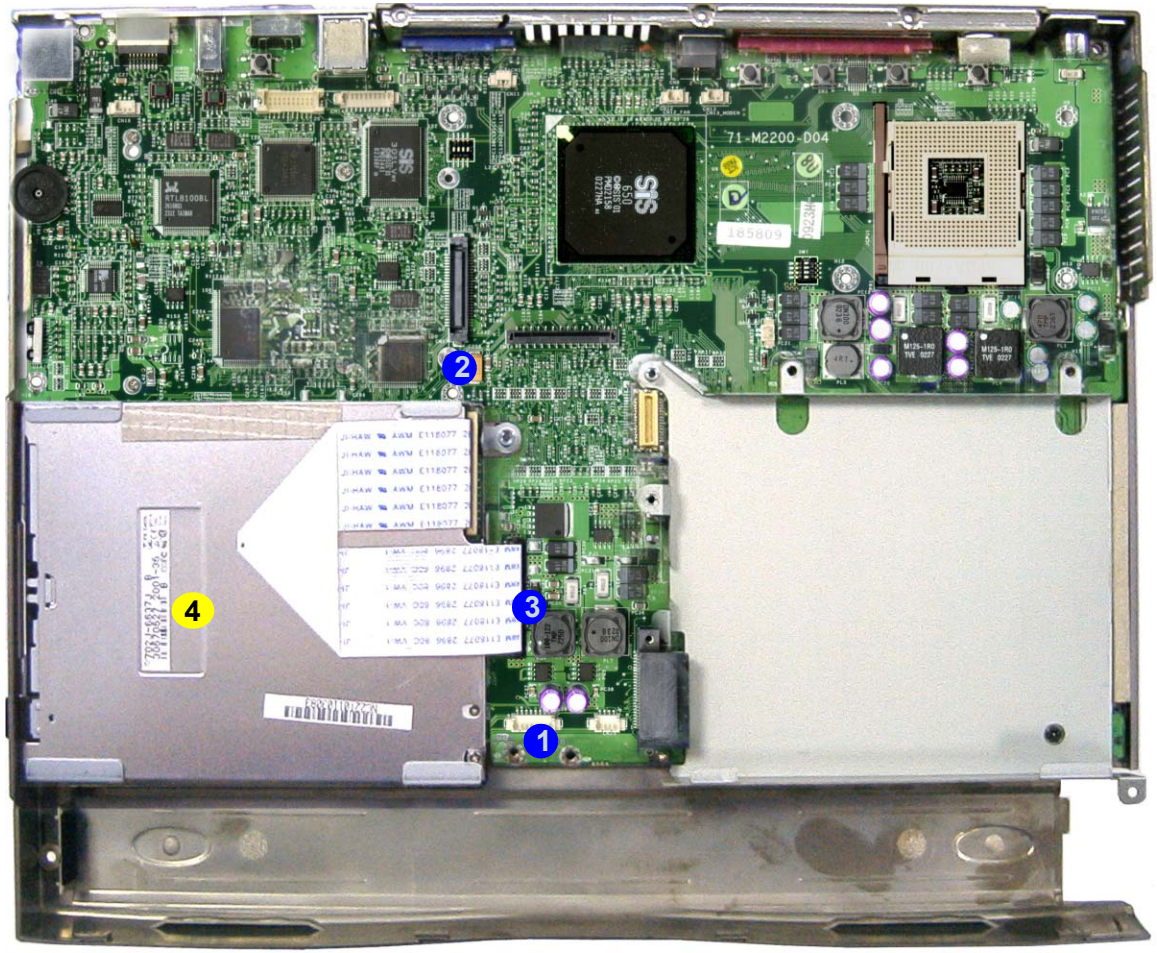


Figure 2 - 12
Floppy Disk Drive Assembly Removal Sequence

Remove the screw and hex nut, disconnect the FDD cable and lift the FDD assembly off the mainboard.

4. FDD Assembly

- 1 Screw
- 1 Hex nut

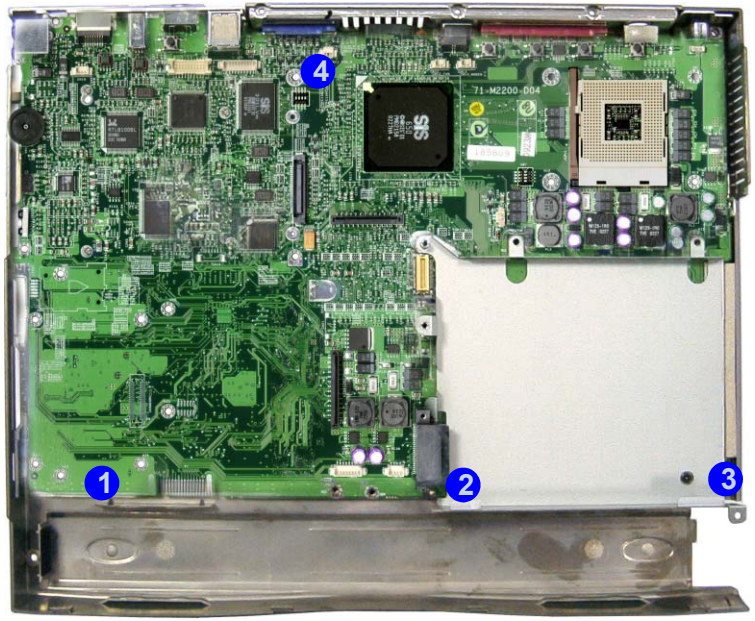
Figure 2 - 13
Mainboard Removal Sequence

a. Remove the screws and hex nut.
b. Lift the mainboard out of the bottom case.

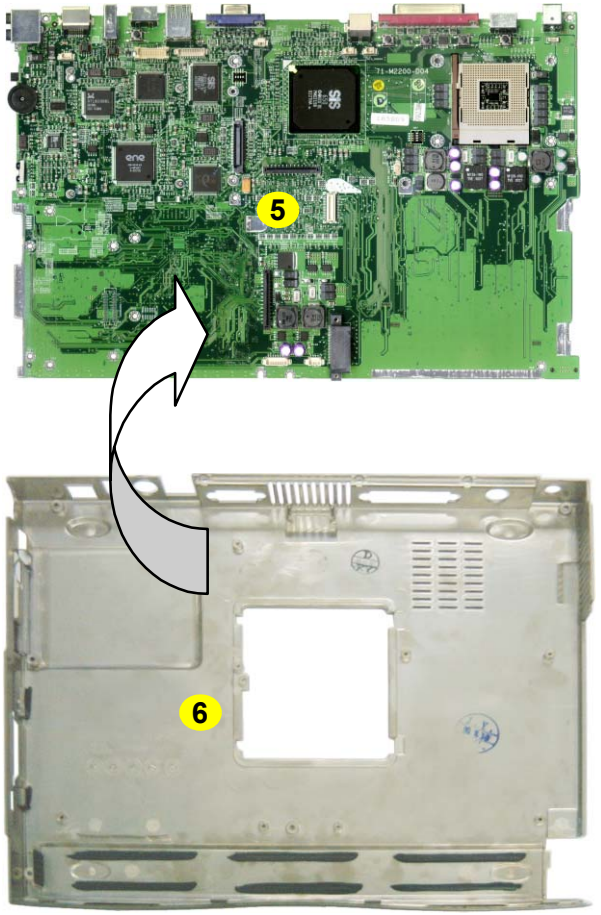
Removing the Mainboard

1. Remove the battery (*page 2 - 6*), keyboard (*page 2 - 8*), HDD assembly (*page 2 - 9*), CPU (*page 2 - 10*), modem (*page 2 - 12*), CD device (*page 2 - 12*), bottom case (*page 2 - 13*) and FDD assembly (*page 2 - 15*).
2. Remove screws 1 - 3 and hex nut 4.
3. Lift the mainboard 5 out of the bottom case 6 (*Figure 2 - 13*).

a.



b.



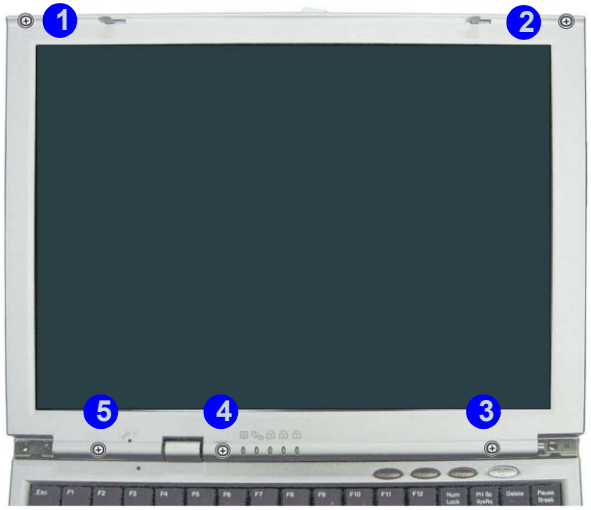
5. Mainboard
6. Bottom case

- 3 Screws
- 1 Hex nut

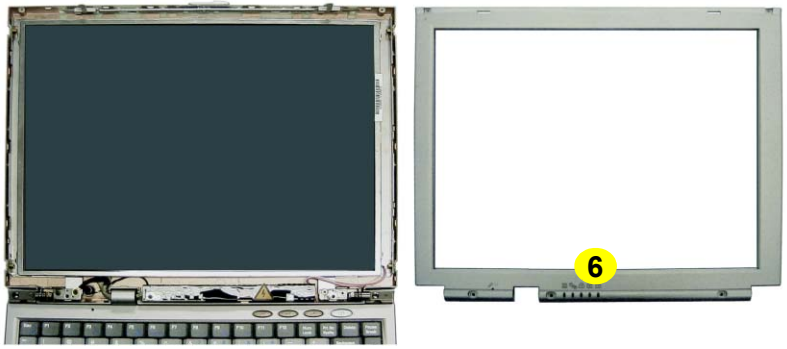
Removing the Inverter

1. Remove the battery (*page 2 - 6*), keyboard (*page 2 - 8*), HDD assembly (*page 2 - 9*), CPU (*page 2 - 10*), modem (*page 2 - 12*), CD device (*page 2 - 12*), and bottom case (*page 2 - 13*).
2. Remove the rubber covers and screws 1 - 5 from the LCD (*Figure 2 - 14a*).
3. Run your finger around the middle of the frame to carefully unsnap the LCD front panel module 6 from the back.
4. Remove screws 7 - 8 from the inverter, and disconnect cables 9 & 10 from the rear of the inverter.
5. Lift the inverter 11 off the LCD assembly .

a.



b.



c.

d.

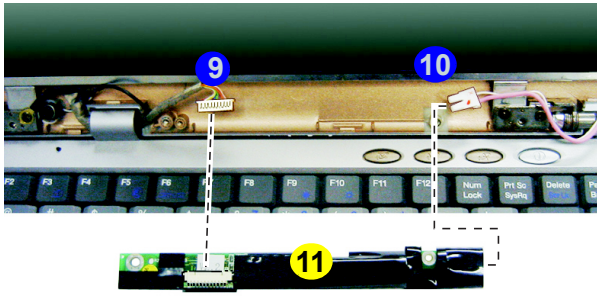


Figure 2 - 14
Inverter Removal Sequence

a. Remove the rubber covers and screws.
b. Unsnap the LCD front panel from the back.
c. Remove the screws from the inverter.
d. Disconnect the cables and remove the inverter.

6. LCD Front Panel
11. Inverter

- 7 Screws
- 5 Rubber covers

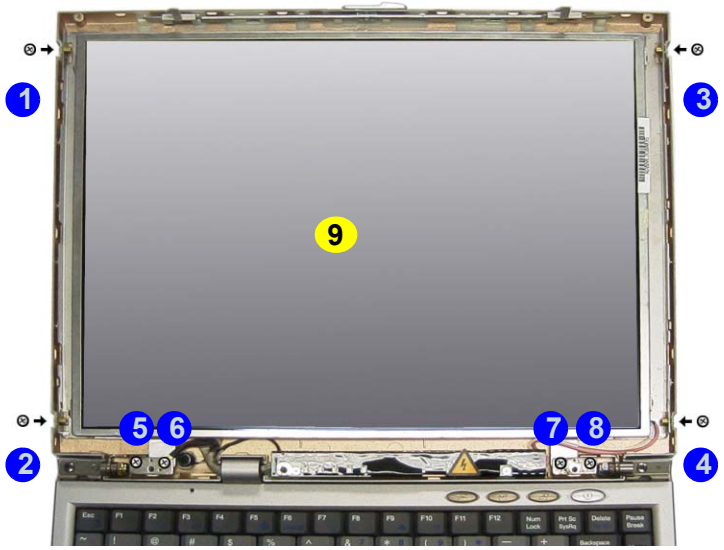
Figure 2 - 15
LCD Removal Sequence

a. Remove the screws and lift the LCD panel off the assembly.
b. Disconnect the LCD cable.
c. Remove the screws to release the brackets.

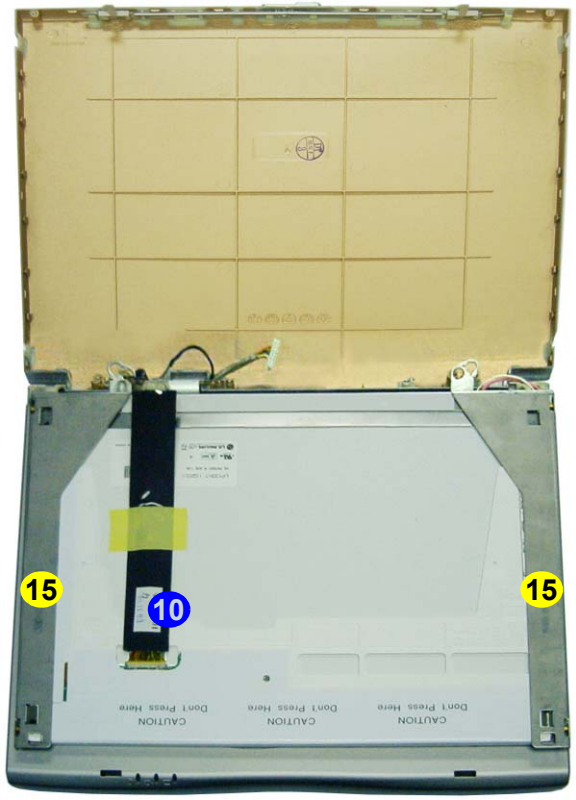
Removing the LCD Panel

1. Remove the battery (*page 2 - 6*), keyboard (*page 2 - 8*), HDD assembly (*page 2 - 9*), CPU (*page 2 - 10*), modem (*page 2 - 12*), CD device (*page 2 - 12*), bottom case (*page 2 - 13*) and inverter (*page 2 - 17*).
2. Remove screws 1 - 8 and gently lift the LCD panel 9 off the top assembly (*Figure 2 - 15a*).
3. Disconnect the LCD cable from the LCD connector 10 (*Figure 2 - 15b*).
4. Remove screws 11 - 14 and separate the LCD panel from the brackets 15 (*Figure 2 - 15c*).

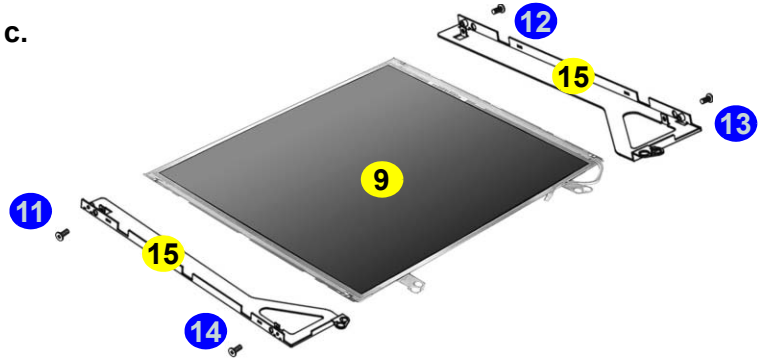
a.



b.



c.



9. LCD Panel
15. 2 * Brackets

- 12 Screws

Appendix A:Part Lists

This appendix breaks down the computer's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

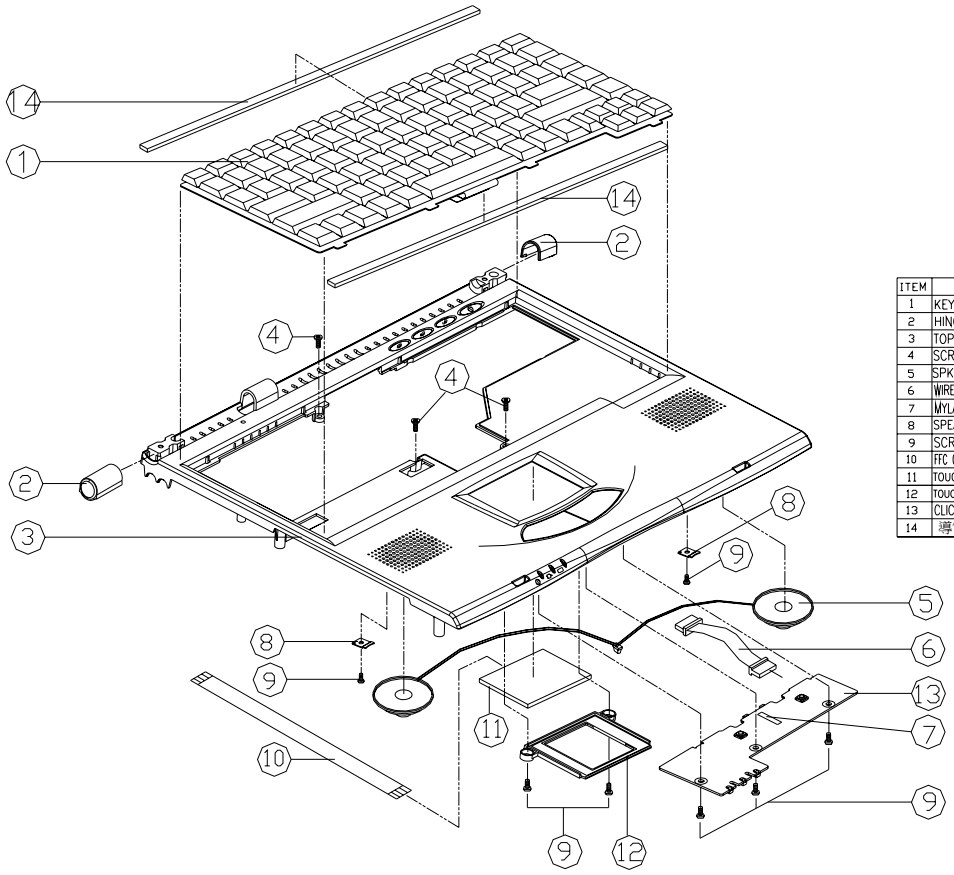
Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table 1
Part List Illustration Location

Parts	M22ES	D22ES	M27ES	D27ES
Top	*page A - 3*	*page A - 12*	*page A - 21*	*page A - 30*
Bottom	*page A - 4*	*page A - 13*	*page A - 22*	*page A - 31*
LCD 14”	*page A - 5*	*page A - 14*	*page A - 23*	*page A - 32*
CD-ROM Drive	*page A - 6*	*page A - 15*	*page A - 24*	*page A - 33*
CD-RW Drive - Toshiba	*page A - 7*	*page A - 16*	*page A - 25*	*page A - 34*
Combo Drive - QSI	*page A - 8*	*page A - 17*	*page A - 26*	*page A - 35*
DVD-ROM Drive -QSI	*page A - 9*	*page A - 18*	*page A - 27*	*page A - 36*
Floppy Disk Drive	*page A - 10*	*page A - 19*	*page A - 28*	*page A - 37*
Hard Disk Drive	*page A - 11*	*page A - 20*	*page A - 29*	*page A - 38*

Top (M22ES)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-22008-7G0	
2	HINGE COVER	42-M221Y-010	
3	TOP CASE MODULE	39-M2212-010	
4	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
5	SPK. WITH CABLE 28mm 1W	23-52810-19B	
6	WIRE CABLE FOR CLICK BOARD	43-22008-001	
7	MYLAR FOR T/P BOARD 260	40-26009-000	
8	SPEAKER BRACKET	33-22017-000	
9	SCREW M2.5*3L K1 NI ICT	35-B1125-3RA	
10	FFC CABLE 8P 85mm FOR GLIDE POINT	27-9350C-850	
11	TOUCHPAD ALPS-KGDDER94.3A-B	49-00102-011	
12	TOUCH PAD HOLDER MODULE 2200	79-2200M-0A0	
13	CLICK BOARD ASS'Y V2.0 2200	77-22002-002	
14	導電布 FOR KEYBOARD	47-22S97-010	

Figure 1
Top (M22ES)

Bottom (M22ES)

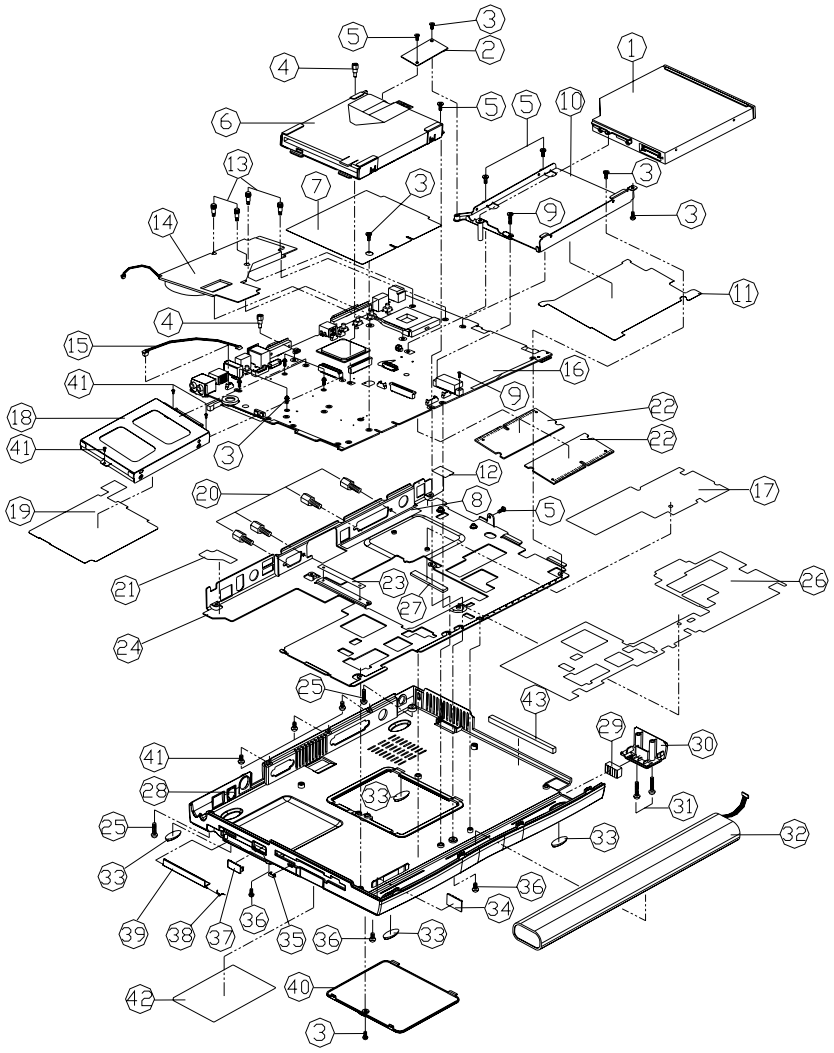
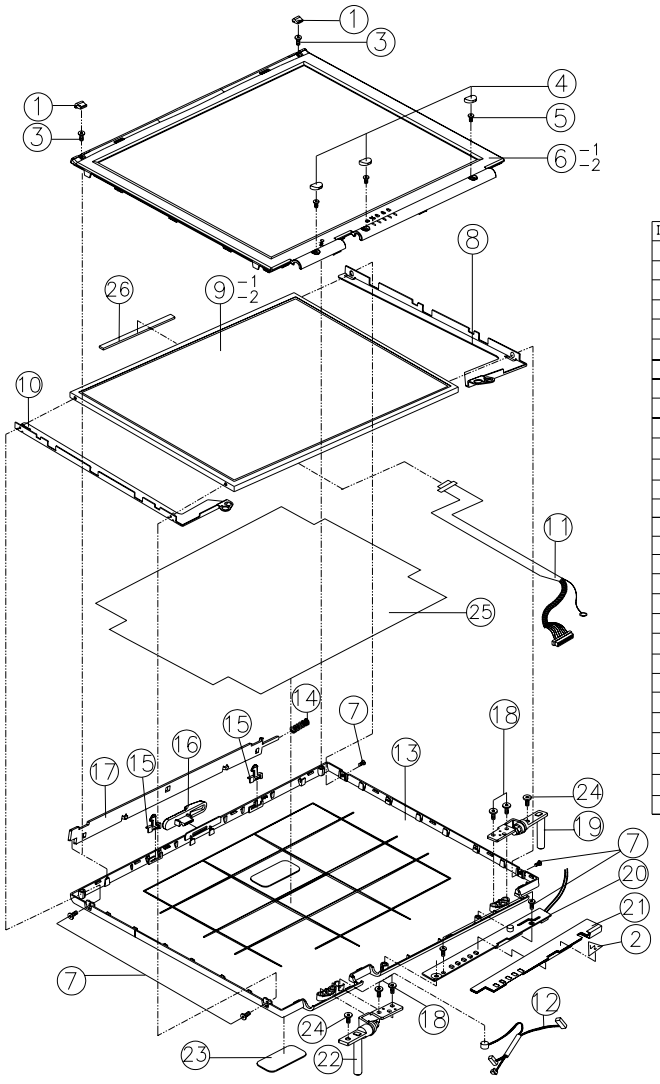


Figure 2
Bottom (M22ES)

ITEM	PART NAME	PART NO	REMARK
1	CD-ROM ASS'Y DWG	79-M221Z-010	Reference Ass'y Dwg (99-M2205-060)
1	DVD-ROM ASS'Y DWG	79-M221V-020	Reference Ass'y Dwg (99-M2205-050)
1	CD-RW ASS'Y DWG	79-M221W-010	Reference Ass'y Dwg (99-M2205-100)
1	COMBO ASS'Y DWG	79-M221X-010	Reference Ass'y Dwg (99-M2205-110)
2	MDC MODEM MODULE	76-32200-003	
3	SCREW M2.5*4.0L K1 BNI ICT	35-B9125-4R0	
4	STANDOFF FOR M/B SUM22 2200	34-22002-000	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	FDD ASS'Y DWG	79-2202J-011	Reference Ass'y Dwg (99-22005-070)
7	FDD MYLAR,MYLARL130*W96*t0.1)mm 2200	40-22003-000	
8	CONDUCTIVE GASKET(L100*W10*0.5t)mm	47-00190-10A	
9	SCREW M2*10L I NI ICT	35-C1120-100-1	
10	CD-ROM/DVD FIXED BRACKET SEE 2200	33-2200Z-020	
11	CD-ROM MYLAR FOR M/B	40-2205Z-011	
12	MYLAR(20*13*0.3t,PC/BK) FOR 2XC/S DC-IN C	40-00120-150	
13	HEX STUD FOR CPU HEATSINK	34-2200N-012	
14	D220S HEAT SINK MOUDLE	31-D220N-100	
15	CABLE FOR MDC TO M/B 137mm 2P 2200T	43-22T0U-010	
16	MAIN BOARD	77-M22E0-D0X	
17	MYLAR FOR CPU	40-22T53-010	
18	HDD ASS'Y (W/O HDD)	79-22021-011	Reference Ass'y Dwg (99-22005-060)
19	HDD MYLAR FOR M/B	40-22002-002	
20	HEX STUD SUM NI-PL 11mm	34-07009-011-A	
21	AUDIO MYLAR,MYLARL22*W15*t0.15)mm 2200	40-22007-000	
22	64M SDRAM*16 PC-100	76-0017U-AB0	
22	64M SDRAM*16 PC-100	76-0017U-AD0	
23	MYLAR M/B TO I/O BRACKET	40-22S0S-020	
24	I/O BRACKET M220S	33-M220S-010	
25	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
26	M/B MYLAR	40-22010-002	
27	GASKET FOR I/O BRACKET(7*38*2)	47-00190-380	
28	BOTTOM CASE	39-M2213-01A	
29	BATTERY COVER RUBBER	47-22001-020	
30	BATTERY COVER	42-M221M-010	
31	SCREW M2.5*23L K1 NI ICT	35-B1125-230	
32	BATTERY GLW 8Cell 2000mAH	87-22S8S-419	
32	BATTERY GLW 8Cell 2000mAH	87-22S8S-4E9	
33	RUBBER FOOT	47-22013-010	
34	BATTERY RUBBER	47-22001-010	
35	FDD LENS	39-22021-000	
36	SCREW M2.5*6L B BN ICT	35-49125-6R0	
37	IR LENS GEPC 2200	39-22020-000	
38	CARD BUS DOOR SPRING Ø0.2mm	38-22001-001	
39	DOOR FOR CARBUS GARAGE	42-M221P-020	
40	RAM COVER	42-M2219-010	
41	SCREW M2*4L K1 NI ICT	35-B1120-4R0-A	
42	PRODUCT LABEL FOR M220E	45-M22E3-010	
43	(85*5*0.35t) FOR 2XC/S M/B(CD-ROM)	47-00190-851	

LCD 14" (M22ES)

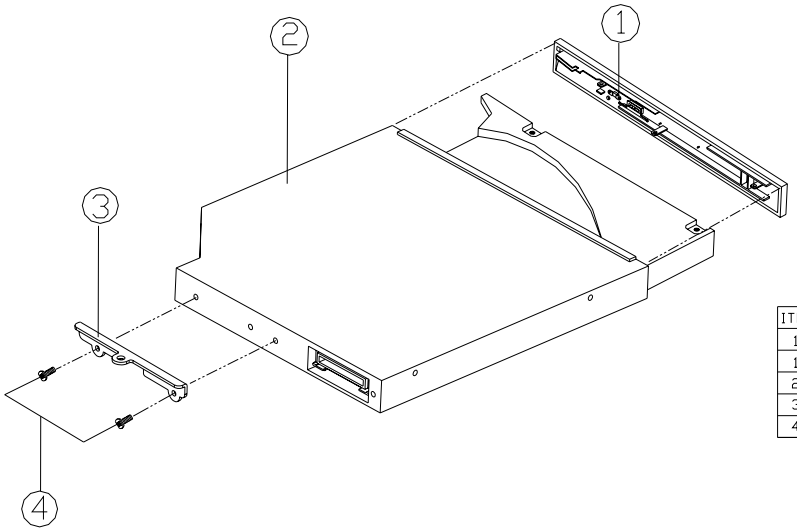


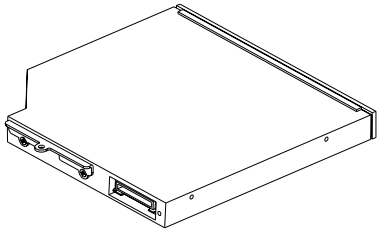
ITEM	PART NAME	PART NO	REMARK
1	DISPLAY RUBBER PAD(TOP)	47-22021-010	
2	ELECTRIC SHOCK CAUTION 82H	45-82004-000	
3	SCREW M2*5L I BZ ICT	35-C6120-5R0	
4	DISPLAY RUBBER RAD(BOTTOM)	47-22021-020	
5	SCREW M2.5*0.45P*6L KI NI ICT	35-B1125-6R0	
6-1	LCD FRONT PANEL & LENS MODULE FOR AU 14.1 UB141X03	39-M2211-110	
6-2	LCD FRONT PANEL & LENS MODULE FOR IBM 14.1 ITXG77	39-M2211-010	
7	SCREW M2*4L KI NI ICT	35-B1120-4RB	
8	LCD BRACKET (NEW-R) FOR UNIPAC 14.1"T	33-22001-310	
9-1	LCD T UNIPAC UB141X03 14.1" XGA 6.0mm	50-J2260-U09	
9-2	LCD T IBM ITXG77-E53-029 14.1"XGA	50-J2287-E01	
9-3	LCD T AU B141XN04 V.1 14.1"XGA	50-J2287-G04	
10	LCD BRACKET (NEW-L) FOR UNIPAC 14.1"	33-22001-320	
11	WIRE CABLE FOR UNIPAC 14.1"	43-22001-301	
12	WIRE CABLE FOR INVERTER L=100mm	43-22006-005	
13	LCD BACK COVER	39-M2211-02A	
14	LCD SPRING Ø0.35mm SUS 260	38-26004-002	
15	LCD HOOK PC/ABS 2200	42-220A1-011	
16	LCD HOOK KNOB	42-M2211-010	
17	LCD LATCH BRACKET	33-22001-012	
18	SCREW M2.5*5L K1 BNI ICT NY	35-B9125-5R0	
19	HINGE (R) MODULE 22/2700	79-2200Y-013	
20	INVERTER BOARD VD1.0	77-M220R-D02	
21	INVERTER MYLAR,MYLAR(L133*W38*t0.125)	40-22004-001	
22	HINGE (L) MODULE 22/2700	79-2200Y-023	
23	NAME PLATE "NOTEBOOK"	45-22001-010	
24	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
25	MYLAR FOR LCD BACK EMI(BK)	40-22S01-020	
26	SPONGE (85*5*2T) FOR 2200C/S 14.1" UNIPAC	47-00191-060	

Figure 3
LCD 14" (M22ES)

CD-ROM Drive - Toshiba (M22ES)

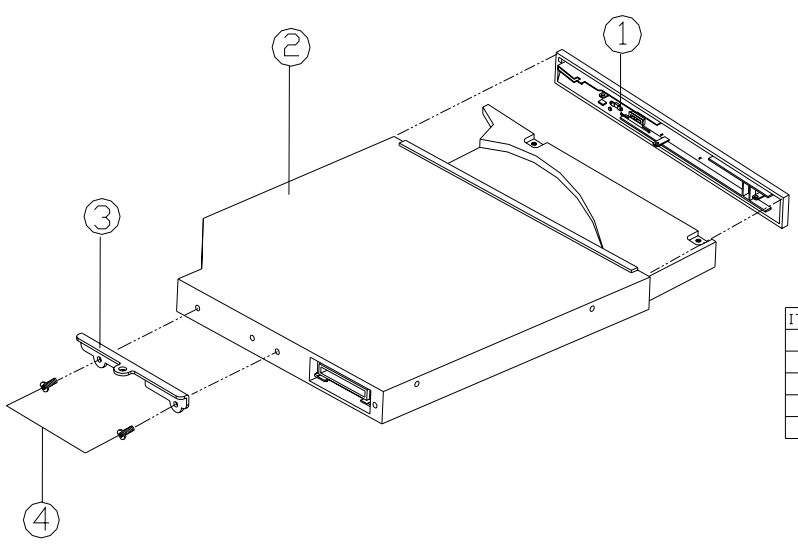
Figure 4
CD-ROM Drive (M22ES)

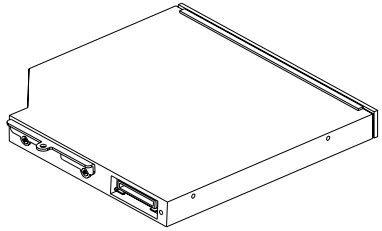




ITEM	PART NAME	PART NO	REMARK
1	CD-ROM BEZEL MODULE TOSHIBA	42-M220Z-100	FOR D220S
1	CD-ROM BEZEL MODULE TOSHIBA	42-M221Z-100	FOR M220S
2	CD-ROM 5 1/4" 24X CAB QSI 12.7mm	85-607□X-C00	SCR-242
3	CD-ROM DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

CD-RW Drive - Toshiba (M22ES)



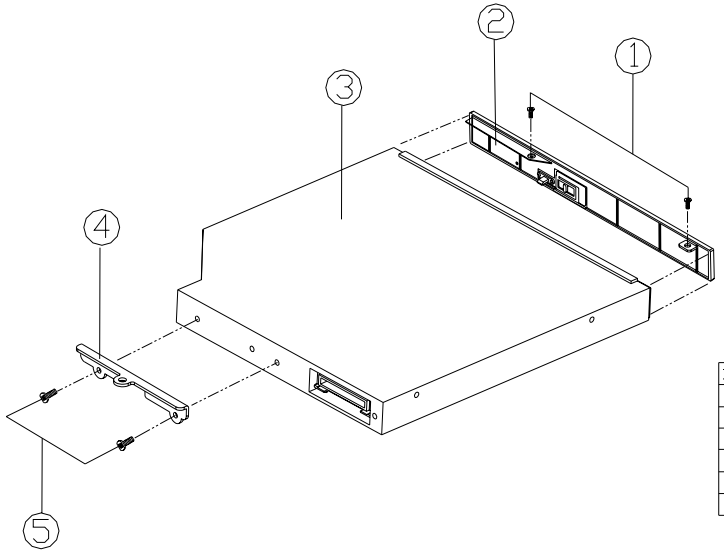


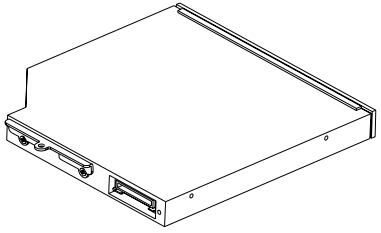
ITEM	PART NAME	PART NO	REMARK
1	CD-RW BEZEL MODULE FOR TOSHIBA 16X	42-M220W-100	FOR D220S
1	CD-RW BEZEL MODULE FOR TOSHIBA 16X	42-M221W-100	FOR M220S
2	CD-R/RW 5 1/4" 16X TOSHIBA 12.7mm	85-807GX-T00	SR-C8102
3	CD-ROM/DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Figure 5
CD-RW Drive (M22ES)

Combo Drive - QSI (M22ES)

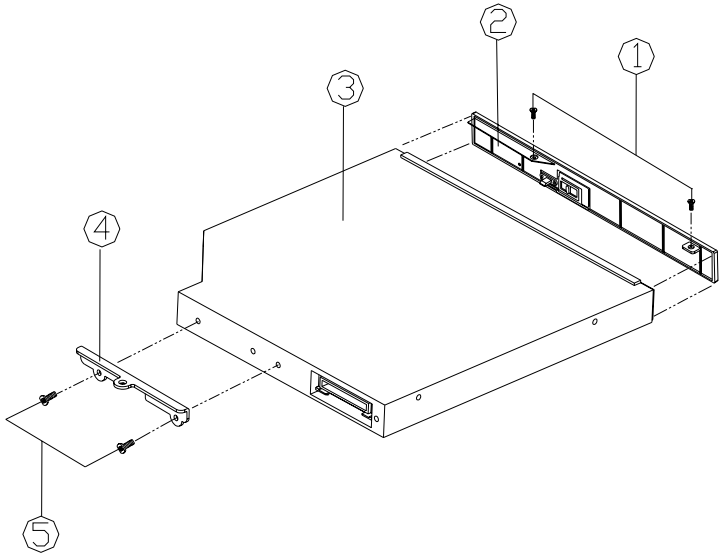
Figure 6
Combo Drive (M22ES)

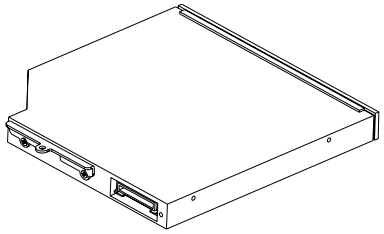




ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	COMBO BEZEL MODULE FOR 16x SBW-161	42-M220X-100	FOR QSI D220S
2	COMBO BEZEL MODULE FOR 16x SBW-161	42-M221X-100	FOR QSI M220S
3	CD-RW/DVD 5 1/4" 8X 12.7mm	85-9078X-C00	QSI(SBW-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

DVD-ROM Drive - QSI (M22ES)



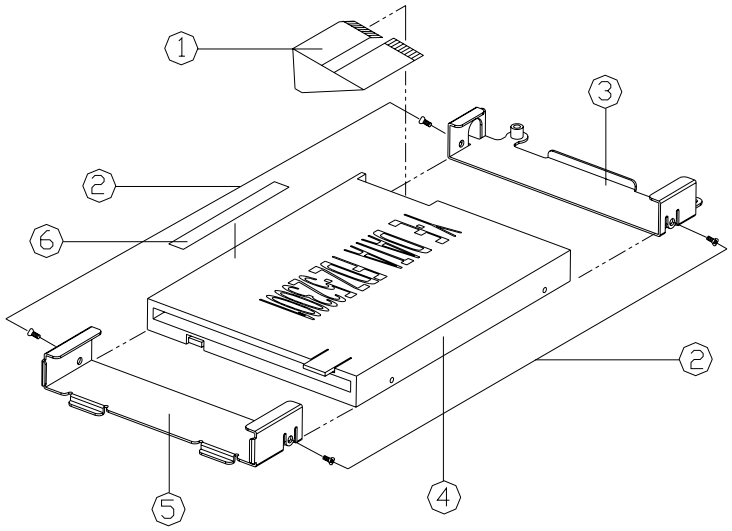


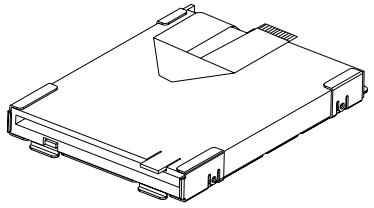
ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	DVD-ROM BEZEL MODULE 8X SDR-081	42-M220V-200	FOR D220S
2	DVD-ROM BEZEL MODULE 8X SDR-081	42-M221V-200	FOR M220S
3	DVD 5 1/4" 8X 12.7mm	85-7078X-C01	QSI(SDR-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

Figure 7
DVD-ROM Drive (M22ES)

Floppy Disk Drive (M22ES)

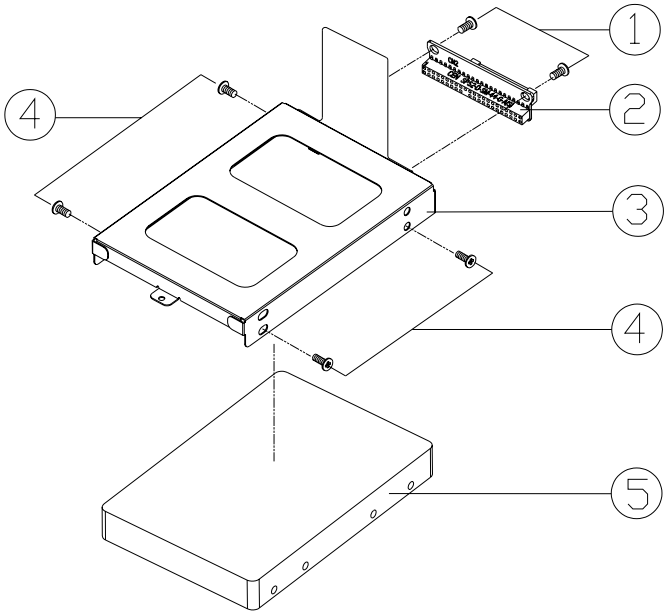
Figure 8
Floppy Disk Drive (M22ES)

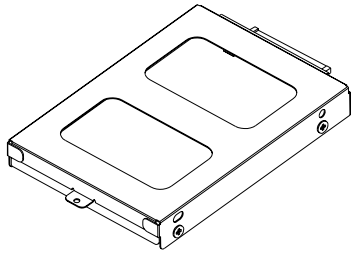




ITEM	PART NAME	PART NO	REMARK
1	FFC CABEL FOR FDD	43-22009-002	
2	SCREW M2.6*3.5L F NI ICT	35-21126-350	
3	FDD BRACKET (B)	33-22004-000	
4	3.5" FDD 1.44MB 12.7mm	85-11700-Y01	YD-702J-6637J
5	FDD BRACKET (F)	33-22003-000	
6	GASKET (60*9*0.5t) FOR 2XC/S HDD CASE&I/O	47-00190-601	

Hard Disk Drive (M22ES)



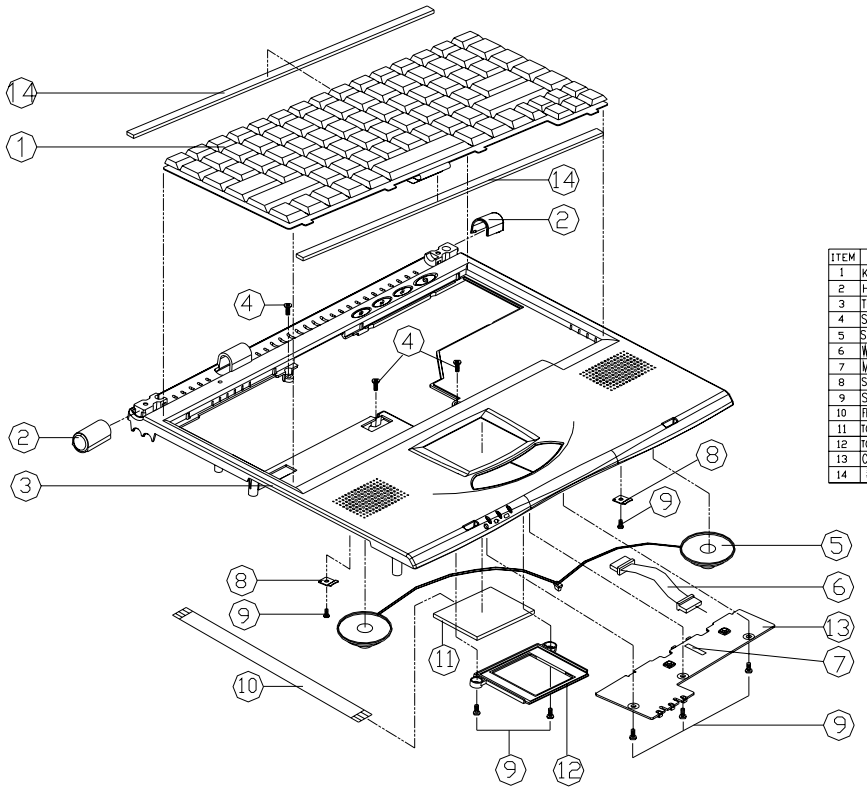


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2L KI BZ ICT	35-B6120-2RA	
2	HDD CONVERTER BOARD	77-22004-D03A	
3	HDD HOLDER AND MYLAR MODULE	79-2200N-0A1	
4	SCREW M3*4L KI NI ICT	35-B1130-4RB	
5	2.5" HDD MHK2060AT 6GB 9.5mm	85-01860-F00	FUJITSU
5	2.5" HDD MK6014MAP 6GB 9.5mm	85-01860-T00	TOSHIBA

Figure 9
HDD Drive (M22ES)

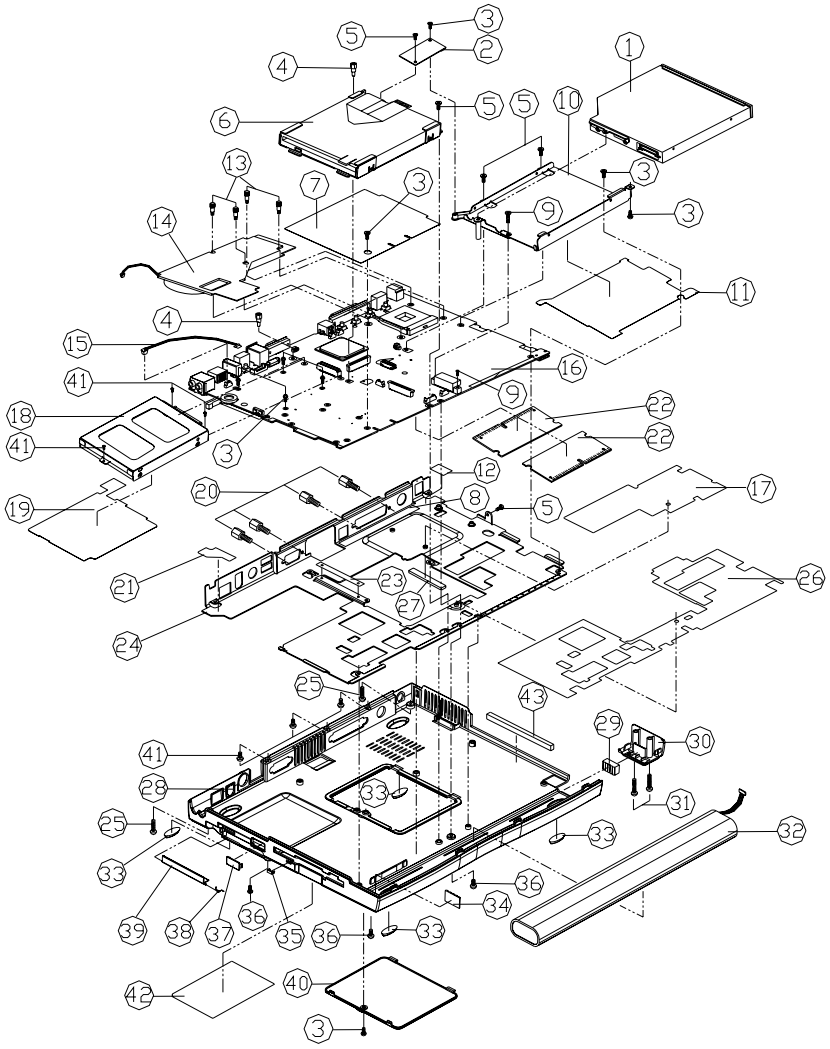
Top (D22ES)

Figure 1
Top (D22ES)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-22008-7G0	
2	HINGE COVER	42-M220Y-010	
3	TOP CASE MODULE	39-M2202-010	
4	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
5	SPK. WITH CABLE 28mm 1W	23-52810-19B	
6	WIRE CABLE FOR CLICK BOARD	43-22008-001	
7	MYLAR FOR T/P BOARD 260	40-26009-000	
8	SPEAKER BRACKET	33-22017-000	
9	SCREW M2.5*3L K1 NI ICT	35-B1125-3RA	
10	FFC CABLE 8P 85mm FOR GLIDE POINT	27-9350C-850	
11	TOUCHPAD ALPS-KGDDER943A-B	49-00102-011	
12	TOUCH PAD HOLDER MODULE 2200	79-2200M-0A0	
13	CLICK BOARD ASS'Y V2.0 2200	77-22002-002	
14	導電布 FOR KEYBOARD	47-22S97-010	

Bottom (D22ES)



ITEM	PART NAME	PART NO	REMARK
1	CD-ROM ASS'Y DWG	79-M220Z-010	Reference Ass'y Dwg (99-M2205-080)
1	DVD-ROM ASS'Y DWG	79-M220V-020	Reference Ass'y Dwg (99-M2205-090)
1	CD-RW ASS'Y DWG	79-M220W-010	Reference Ass'y Dwg (99-M2205-100)
1	COMBO ASS'Y DWG	79-M220X-010	Reference Ass'y Dwg (99-M2205-110)
2	MDC MODEM MODULE	76-32200-003	
3	SCREW M2.5*4.0L K1 BN1 ICT	35-B9125-4R0	
4	STANDOFF FOR M/B SUM22 2200	34-22002-000	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	FDD ASS'Y DWG	79-2202J-011	Reference Ass'y Dwg (99-22005-070)
7	FDD MYLAR,MYLAR(L130*W96*t0.1)mm 2200	40-22003-000	
8	CONDUCTIVE GASKET(L100*W10*0.5t)mm	47-00190-10A	
9	SCREW M2*10L I NI ICT	35-C1120-100-1	
10	CD-ROM/DVD FIXED BRACKET SEE 2200	33-2200Z-020	
11	CD-ROM MYLAR FOR M/B	40-2205Z-011	
12	MYLAR(20*13*0.3t,PC/BK) FOR 2XC/S DC-IN C	40-00120-150	
13	HEX STUD FOR CPU HEATSINK	34-2200N-012	
14	D220S HEAT SINK MOUDLE	31-D220N-100	
15	CABLE FOR MDC TO M/B 137mm 2P 2200T	43-22T0U-010	
16	MAIN BOARD	77-M22E0-D0X	
17	MYLAR FOR CPU	40-22T53-010	
18	HDD ASS'Y (W/O HDD)	79-22021-011	Reference Ass'y Dwg (99-22005-060)
19	HDD MYLAR FOR M/B	40-22002-002	
20	HEX STUD SUM NI-PL 11mm	34-07009-011-A	
21	AUDIO MYLAR,MYLAR(L22*W15*t0.15)mm 2200	40-22007-000	
22	64M SDRAM*16 PC-100	76-0017U-AB0	
22	64M SDRAM*16 PC-100	76-0017U-AD0	
23	MYLAR M/B TO I/O BRACKET	40-22S0S-020	
24	I/O BRACKET M220S	33-M220S-010	
25	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
26	M/B MYLAR	40-22010-002	
27	GASKET FOR I/O BRACKET(7*38*2)	47-00190-380	
28	BOTTOM CASE	39-M2203-01A	
29	BATTERY COVER RUBBER	47-22001-020	
30	BATTERY COVER	42-M220M-010	
31	SCREW M2.5*23L K1 NI ICT	35-B1125-230	
32	BATTERY GLW 8Cell 2000mAH	87-22S8S-419	
32	BATTERY GLW 8Cell 2000mAH	87-22S8S-419	
33	RUBBER FOOT	47-22013-010	
34	BATTERY RUBBER	47-22001-010	
35	FDD LENS	39-22021-000	
36	SCREW M2.5*6L B BN ICT	35-49125-6R0	
37	IR LENS GEPC 2200	39-22020-000	
38	CARD BUS DOOR SPRING Ø0.2mm	38-22001-001	
39	DOOR FOR CARBUS GARAGE	42-M220P-020	
40	RAM COVER	42-M2209-010	
41	SCREW M2*4L K1 NI ICT	35-B1120-4R0-A	
42	PRODUCT LABEL FOR D220E	45-D22E3-010	
43	(85*5*0.35t) FOR 2XC/S W/BKCD-ROM)	47-00190-851	

Figure 2
Bottom (D22ES)

LCD 14" (D22ES)

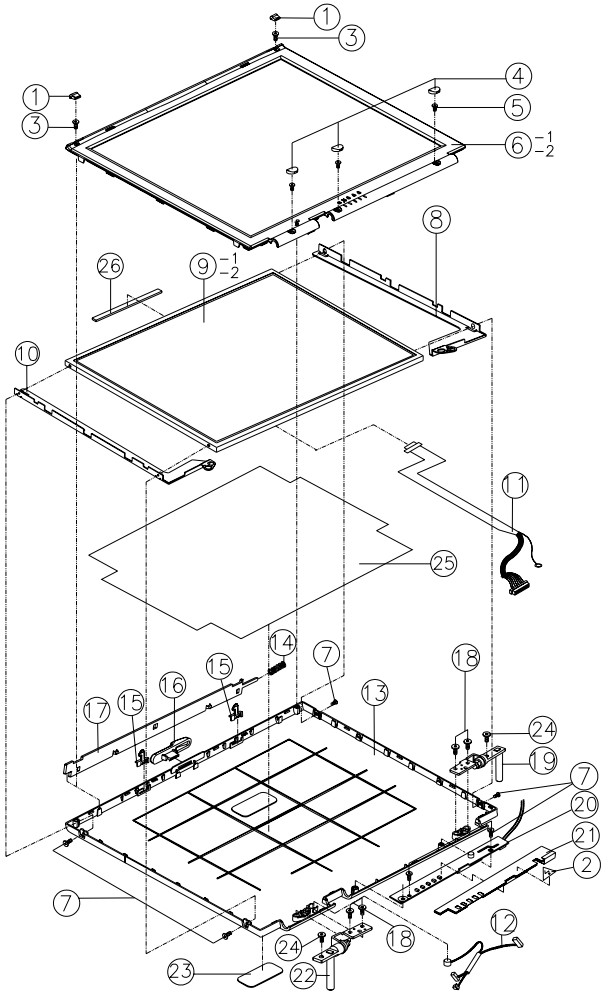
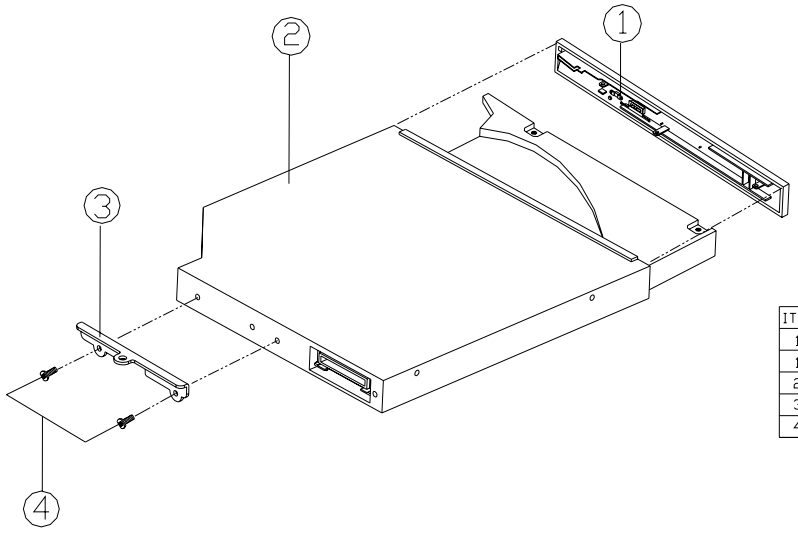
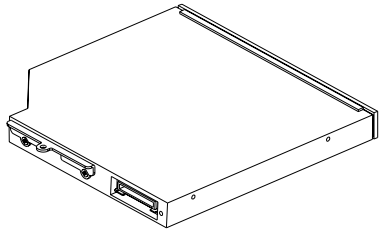


Figure 3
LCD 14" (D22ES)

ITEM	PART NAME	PART NO	REMARK
1	DISPLAY RUBBER PAD(TOP)	47-22021-010	
2	ELECTRIC SHOCK CAUTION 82H	45-82004-000	
3	SCREW M2*5L I BZ ICT	35-C6120-5R0	
4	DISPLAY RUBBER RAD(BOTTOM)	47-22021-020	
5	SCREW M2.5*0.45P*6L KI NI ICT	35-B1125-6R0	
6-1	LCD FRONT PANEL & LENS MODULE FOR AU 14.1 UB141X03	39-M2201-110	
6-2	LCD FRONT PANEL & LENS MODULE FOR BN 14.1 ITXG77	39-M2201-010	
7	SCREW M2*4L KI NI ICT	35-B1120-4RB	
8	LCD BRACKET (NEW-R) FOR UNIPAC 14.1"T	33-22001-310	
9-1	LCD T UNIPAC UB141X03 14.1" XGA 6.0mm	50-J2260-U09	
9-2	LCD T IBM ITXG77-E53-029 14.1"XGA	50-J2287-E01	
10	LCD BRACKET (NEW-L) FOR UNIPAC 14.1"	33-22001-320	
11	WIRE CABLE FOR UNIPAC 14.1"	43-22001-301	
12	WIRE CABLE FOR INVERTER L=100mm	43-22006-005	
13	LCD BACK COVER	39-M2201-02A	
14	LCD SPRING Φ0.35mm SUS 260	38-26004-002	
15	LCD HOOK PC/ABS 2200	42-220A1-011	
16	LCD HOOK KNOB	42-M2201-010	
17	LCD LATCH BRACKET	33-22001-012	
18	SCREW M2.5*5L KI BNI ICT NY	35-B9125-5R0	
19	HINGE (R) MODULE 22/2700	79-2200Y-013	
20	INVERTER BOARD VD1.0	77-M220R-D02	
21	INVERTER MYLAR,MYLAR(L133*W38*t0.125)	40-22004-001	
22	HINGE (L) MODULE 22/2700	79-2200Y-023	
23	NAME PLATE "NOTEBOOK"	45-22001-010	
24	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
25	MYLAR FOR LCD BACK EMI(BK)	40-22S01-020	
26	SPONGE (85*21) FOR 2200C/S 14.1" UNIPAC	47-00191-060	

CD-ROM Drive - Toshiba (D22ES)



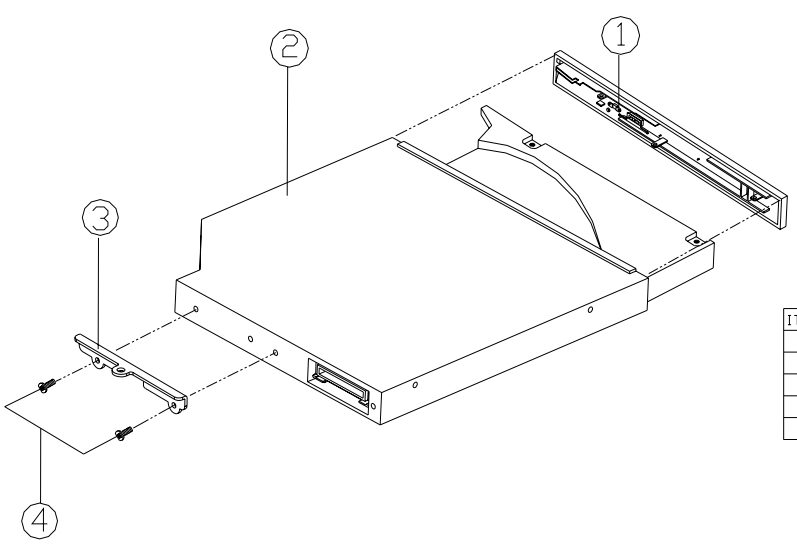


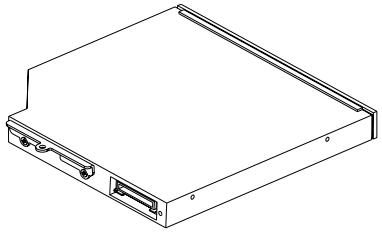
ITEM	PART NAME	PART NO	REMARK
1	CD-ROM BEZEL MODULE TOSHIBA	42-M220Z-100	FOR D220S
1	CD-ROM BEZEL MODULE TOSHIBA	42-M221Z-100	FOR M220S
2	CD-ROM 5 1/4" 24X CAB QSI 12.7mm	85-607DX-C00	SCR-242
3	CD-ROM DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Figure 4
CD-ROM Drive (D22ES)

CD-RW Drive - Toshiba (D22ES)

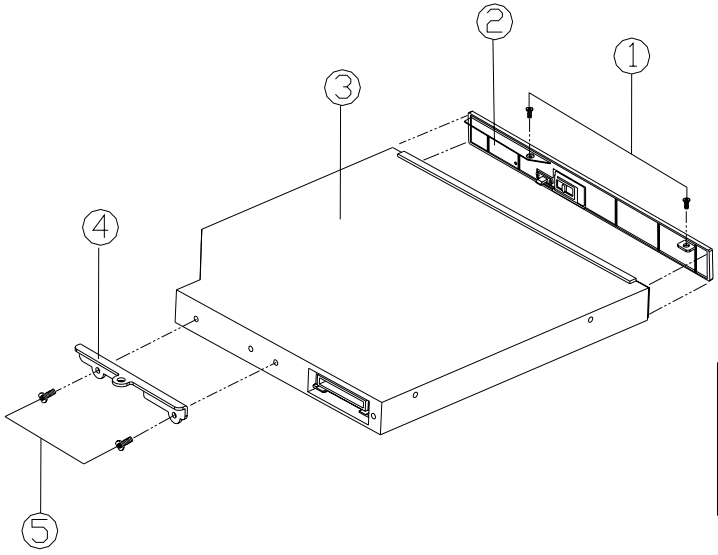
Figure 5
CD-RW Drive (D22ES)

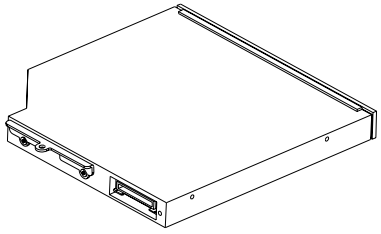




ITEM	PART NAME	PART NO	REMARK
1	CD-RW BEZEL MODULE FOR TOSHIBA 16X	42-M220W-100	FOR D220S
1	CD-RW BEZEL MODULE FOR TOSHIBA 16X	42-M221W-100	FOR M220S
2	CD-R/RW 5 1/4" 16X TOSHIBA 12.7mm	85-807GX-T00	SR-C8102
3	CD-ROM/DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Combo Drive - QSI (D22ES)



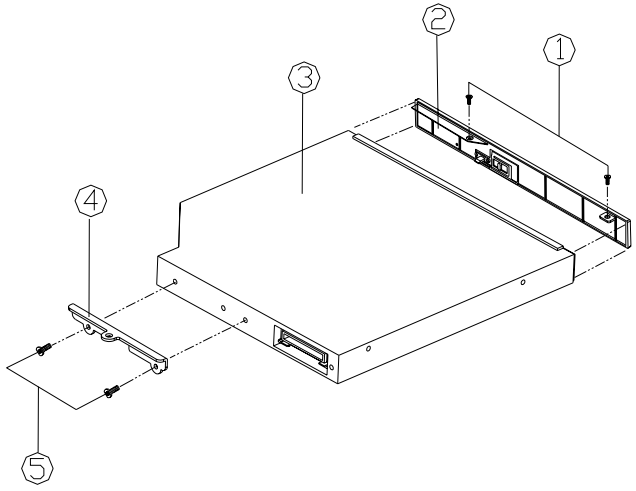


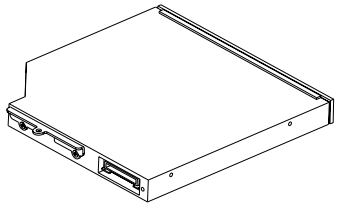
ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	COMBO BEZEL MODULE FOR 16X SBW-161	42-M220X-100	FOR QSI D220S
2	COMBO BEZEL MODULE FOR 16X SBW-161	42-M221X-100	FOR QSI M220S
3	CD-RW/DVD 5 1/4" 8X 12.7mm	85-9078X-C00	QSI(SBW-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

Figure 6
Combo Drive (D22ES)

DVD-ROM Drive - QSI (D22ES)

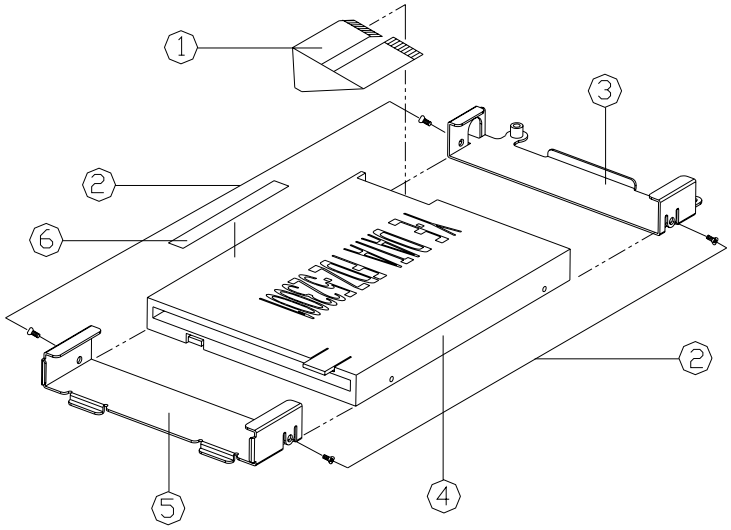
Figure 7
DVD-ROM Drive (D22ES)

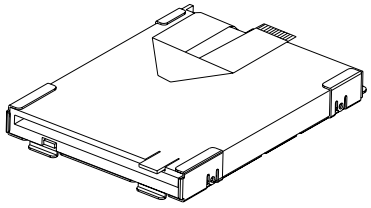




ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	DVD-ROM BEZEL MODULE 8X SDR-081	42-M220V-200	FOR D220S
2	DVD-ROM BEZEL MODULE 8X SDR-081	42-M221V-200	FOR M220S
3	DVD 5 1/4" 8X 12.7mm	85-7078X-C01	QSI(SDR-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L K1 NI ICT NY	35-B1120-3RB	

Floppy Disk Drive (D22ES)



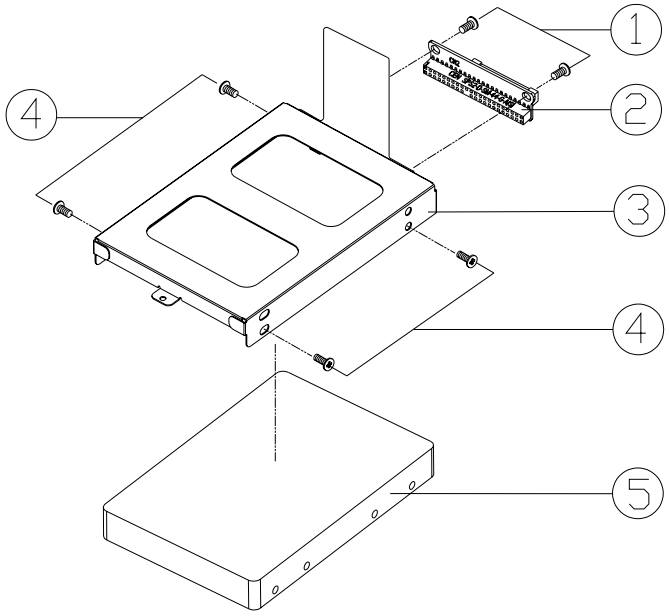


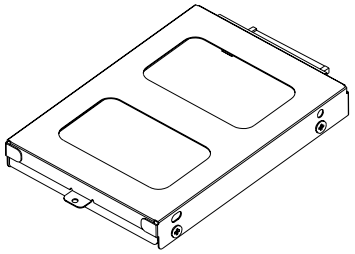
ITEM	PART NAME	PART NO	REMARK
1	FFC CABEL FOR FDD	43-22009-002	
2	SCREW M2.6*3.5L F NI ICT	35-21126-350	
3	FDD BRACKET (B)	33-22004-000	
4	3.5" FDD 1.44MB 12.7mm	85-11700-Y01	YD-702J-6637J
5	FDD BRACKET (F)	33-22003-000	
6	GASKET (60*9*0.5t) FOR 2XC/S HDD CASE&I/O	47-00190-601	

Figure 8
Floppy Disk Drive (D22ES)

Hard Disk Drive (D22ES)

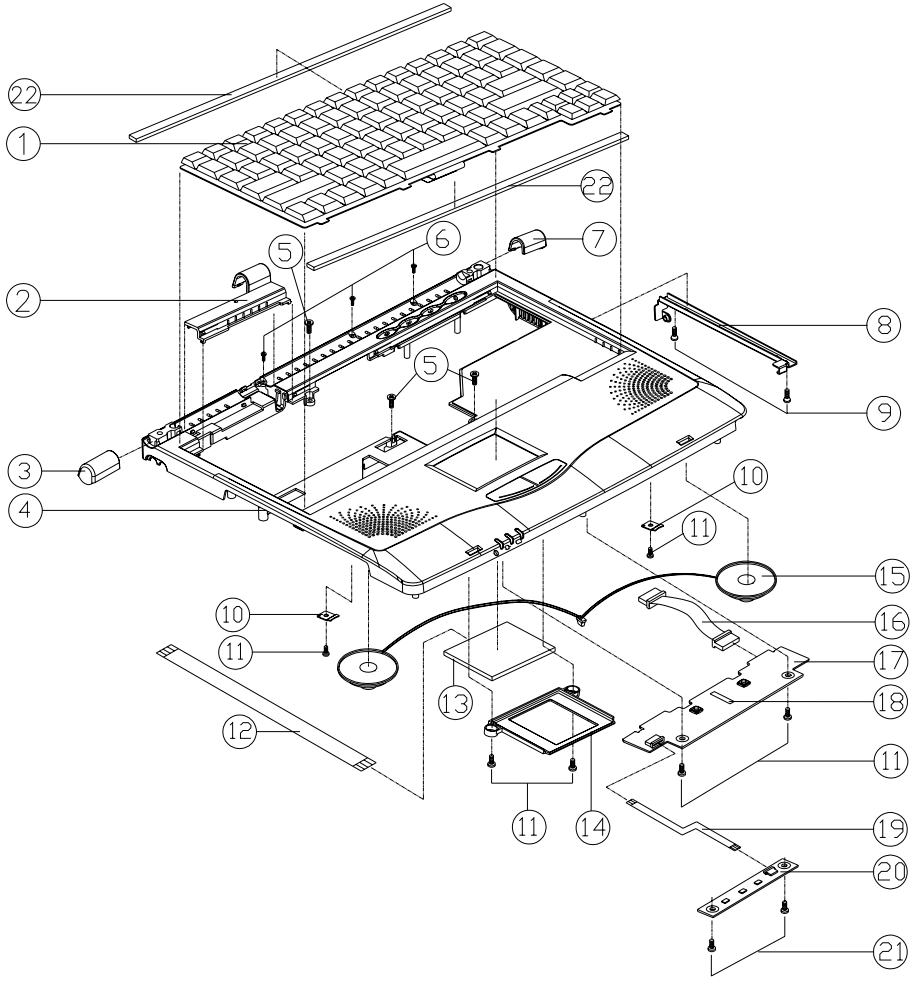
Figure 9
HDD Drive (D22ES)





ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2L KI BZ ICT	35-B6120-2RA	
2	HDD CONVERTER BOARD	77-22004-D03A	
3	HDD HOLDER AND MYLAR MODULE	79-2200N-0A1	
4	SCREW M3*4L KI NI ICT	35-B1130-4RB	
5	2.5" HDD MHK2060AT 6GB 9.5mm	85-01860-F00	FUJITSU
5	2.5" HDD MK6014MAP 6GB 9.5mm	85-01860-T00	TOSHIBA

Top (M27ES)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-22008-7G0	
2	LCD CABLE COVER MODULE	42-M2701-200	
3	HINGE COVER(L)	42-M270Y-020	
4	TOP CASE MODULE	39-M2702-010	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	SCREW M2*4L K1 BNI ICT	35-B9120-4R0	
7	HINGE COVER(R)	42-M270Y-010	
8	CD-ROM BRACKET 2700(S)	33-2700Z-011	
9	SCREW M2*3L F NI	35-21120-3R0	
10	SPEAKER BRACKET	33-22017-000	
11	SCREW M2.5*3L K1 NI ICT	35-B1125-3RA	
12	FFC CABLE 8P 85mm FOR GLIDE POINT	27-9350C-850	
13	TOUCHPAD ALPS KGDDHQ943A-B	49-00102-011	
14	TOUCH PAD HOLDER MODULE 2200	79-2200M-0A0	
15	SPK. WITH CABLE 28mm 1W	23-52810-19B	
16	WIRE CABLE FOR CLICK BOARD	43-22008-001	
17	SWITCH BOARD	77-27001-D01	
18	MYLAR FOR T/P BOARD 260	40-26009-000	
19	CABLE FOR LED BOARD	43-2700S-011	
20	LED BOARD	77-27002-D03	
21	SCREW M2*4L KI BN ICT	35-B1120-4R0-A	
22	導電布 FOR KEYBOARD	47-22S97-010	

Figure 1
Top (M27ES)

Bottom (M27ES)

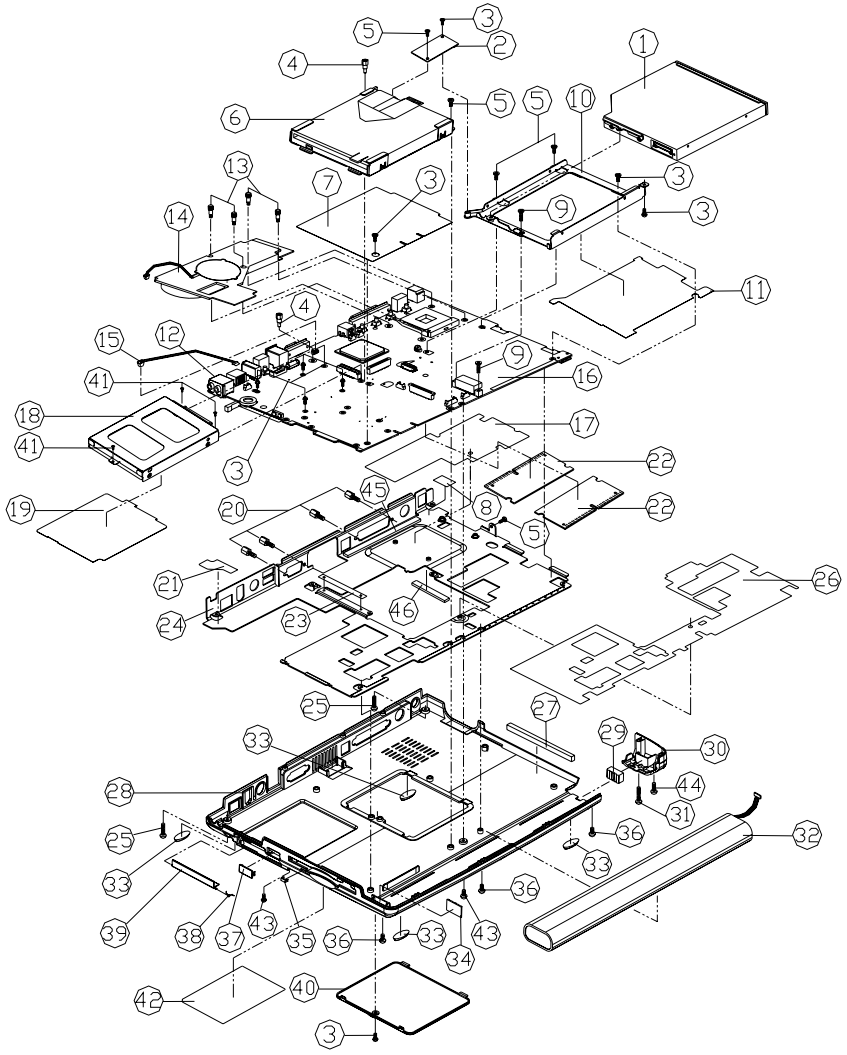
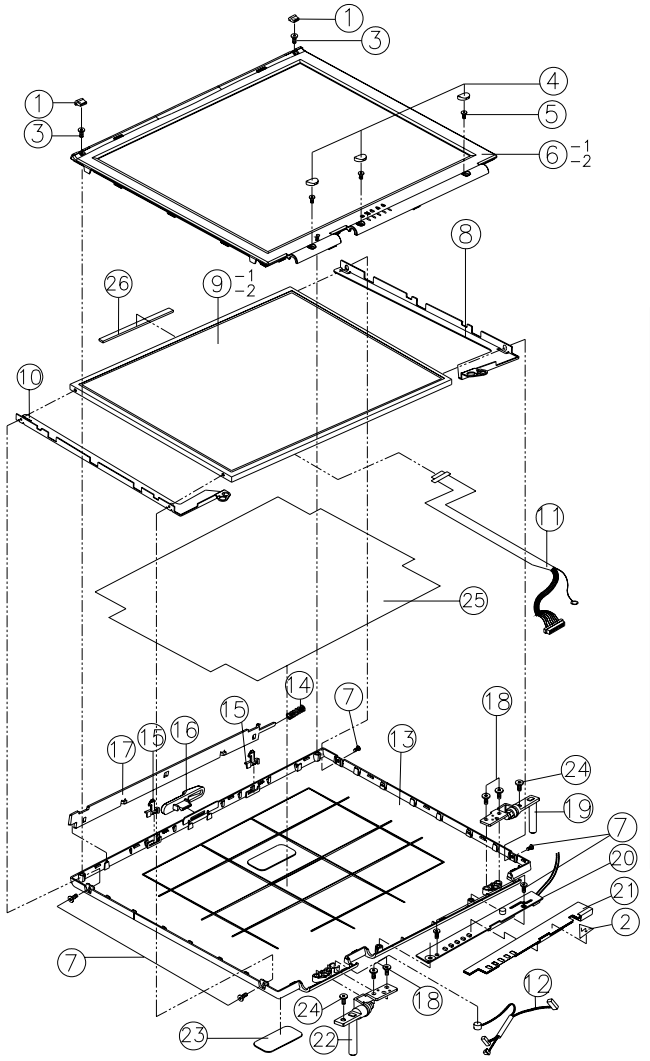


Figure 2
Bottom (M27ES)

ITEM	PART NAME	PART NO	REMARK
1	CD-ROM ASS'Y DWG	79-M270Z-010	Reference Ass'y Dwg (99-M2705-050)
1	DVD-ROM ASS'Y DWG	79-M270V-020	Reference Ass'y Dwg (99-M2705-060)
1	CD-RW ASS'Y DWG	79-M270W-010	Reference Ass'y Dwg (99-M2705-070)
1	COMBO ASS'Y DWG	79-M270X-010	Reference Ass'y Dwg (99-M2705-080)
2	MDC MODEM MODULE	76-32200-003	
3	SCREW M2.5*4.0L K1 BNI ICT	35-B9125-4R0	
4	STANDOFF FOR M/B SUM22	34-22002-000	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	FDD ASS'Y DWG	79-2202J-011	Reference Ass'y Dwg (99-22005-070)
7	FDD MYLAR(130*W96*t0.1)mm	40-22003-000	
8	MYLAR (20*13*0.3t PC/BK)FOR 2XC/S DC-IN C	40-00120-150	
9	SCREW M2*10L I NI ICT	35-C1120-100-1	
10	CD-ROM/DVD BRACKET	33-2200Z-012	
11	CD-ROM MYLAR(L122*W104*t0.1)mm	40-2205Z-010	
12	AUDIO JACK SHIELDING	33-2200S-020	
13	HEX STUD FOR CPU HEATSINK	34-2200N-010	
14	HEATSINK MOUDLE M220S	31-M220N-100	
14	HEATSINK MOUDLE D220S	31-D220N-100	
15	CABLE FOR MDC TO M/B 137mm 2P 2200T	43-22T0U-010	
16	MAIN BOARD	77-M22E0-D0X	
17	MYLAR FOR CPU	40-22T53-010	
18	HDD ASS'Y (W/O HDD)	79-22021-011	Reference Ass'y Dwg (99-22005-060)
19	HDD MYLAR FOR M/B	40-22002-002	
20	HEX STUD SUM NI-PL 11mm	34-82001-000	
21	AUDIO MYLAR(L22*W15*t0.15)mm	40-22007-000	
22	64M SDRAM*16 PC-100	76-0017U-AB0	
22	64M SDRAM*16 PC-100	76-0017U-AD0	
23	MYLAR FOR M/B TO I/O BRACKET	40-22S0S-020	
24	I/O BRACKET	33-M220S-010	
25	SCREW M2.5*8L B BN ICT	35-49125-8R0	
26	MYLAR OF MB	40-22010-002	
27	(82*5*5.5t) FOR 2XC/S CD-ROM	47-00190-821	
28	BOTTOM CASE	39-M2703-01A	
29	BATTERY COVER RUBBER	47-22001-020	
30	BATTERY COVER	42-M270M-010	
31	SCREW M2.5*23L K1 NI ICT	35-B1125-230	
32	BATTERY FOR GLW 8Cell 2000mAH	87-22S8S-419	
32	BATTERY FOR GLW 8Cell 2000mAH	87-22S8S-4E9	
33	RUBBER FOOT	47-22013-010	
34	BATTERY RUBBER	47-22001-010	
35	FDD LENS	39-22021-000	
36	SCREW M2*4L K1 BNI ICT	35-B9120-4R0	
37	IR LENS	39-22020-000	
38	CARD BUS DOOR SPRING Ø0.2mm	38-22001-000	
39	DOOR FOR CARBUS GARAGE	42-M270P-020	
40	RAM COVER	42-M2709-010	
41	SCREW M2*4L K1 NI ICT	35-B1120-4R0-A	
42	PRODUCT LABEL FOR M270E	45-M27E3-010	
43	SCREW M2.5*6L B BN ICT	35-49125-6R0	
44	SCREW M2.5*14L K1 BNI ICT	35-B9125-140	
45	CONDUCTIVE GASKET (L100*W10*0.5t)mm	47-00190-10A	
46	GASKET FOR I/O BRACKET (7*38*2)	47-00190-380	

LCD 14" (M27ES)

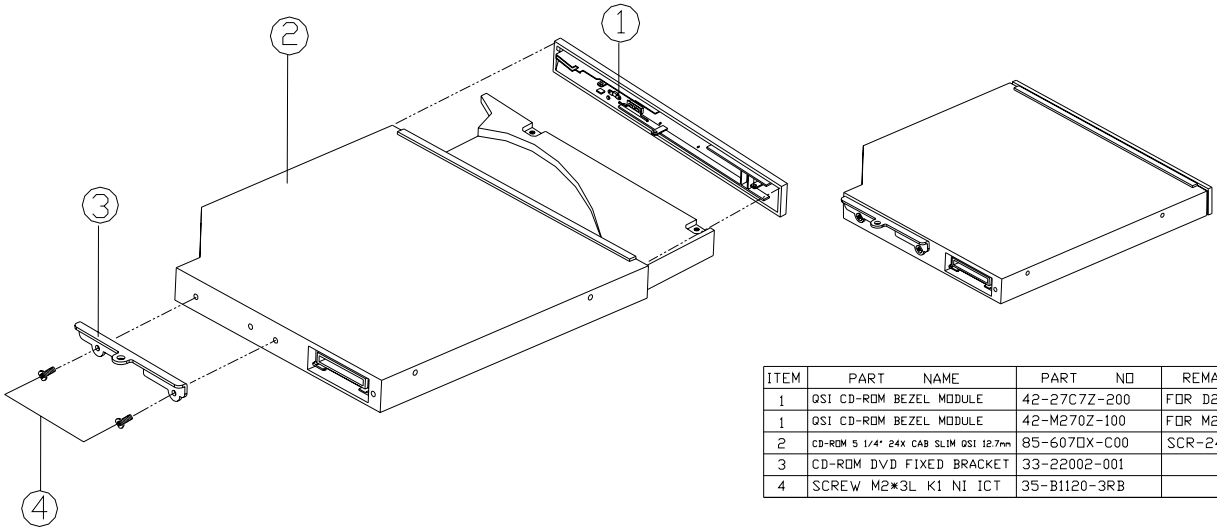


ITEM	PART NAME	PART NO	REMARK
1	DISPLAY RUBBER PAD(TOP)	47-22021-010	
2	ELECTRIC SHOCK CAUTION 82H	45-82004-000	
3	SCREW M2*5L I BZ ICT	35-C6120-5R0	
4	DISPLAY RUBBER RAD(BOTTOM)	47-22021-020	
5	SCREW M2.5*0.45P*6L KI NI ICT	35-B1125-6R0	
6-1	LCD FRONT PANEL & LENS MODULE FOR AU 14.1 UB141X03	39-M2211-110	
6-2	LCD FRONT PANEL & LENS MODULE FOR IBM 14.1 ITXG77	39-M2211-010	
7	SCREW M2*4L KI NI ICT	35-B1120-4RB	
8	LCD BRACKET (NEW-R) FOR UNIPAC 14.1"T	33-27001-310	
9-1	LCD T UNIPAC UB141X03 14.1" XGA 6.0mm	50-J2260-U09	
9-2	LCD T IBM ITXG77-E53-029 14.1"XGA	50-J2287-E01	
10	LCD BRACKET (NEW-L) FOR UNIPAC 14.1"	33-27001-320	
11	WIRE CABLE FOR UNIPAC 14.1"	43-22001-301	
12	WIRE CABLE FOR INVERTER L=100mm	43-22006-005	
13	LCD BACK COVER	39-M2211-02A	
14	LCD SPRING ø0.35mm SUS 260	38-26004-002	
15	LCD HOOK PC/ABS 2200	42-270A1-011	
16	LCD HOOK KNOB	42-M2701-010	
17	LCD LATCH BRACKET	33-22001-012	
18	SCREW M2.5*5L K1 BNI ICT NY	35-B9125-5R0	
19	HINGE (R) MODULE 22/2700	79-2200Y-013	
20	INVERTER BOARD VD1.0	77-M220R-D02	
21	INVERTER MYLAR,MYLAR(L133*W38*t0.125)	40-22004-001	
22	HINGE (L) MODULE 22/2700	79-2200Y-023	
23	NAME PLATE "NOTEBOOK"	45-22001-010	
24	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
25	MYLAR FOR LCD BACK EMI(BK)	40-22S01-020	
26	SPONGE (85*5*2T) FOR 2200C/S 14.1" UNIPAC	47-00191-060	

Figure 3
LCD 14" (M27ES)

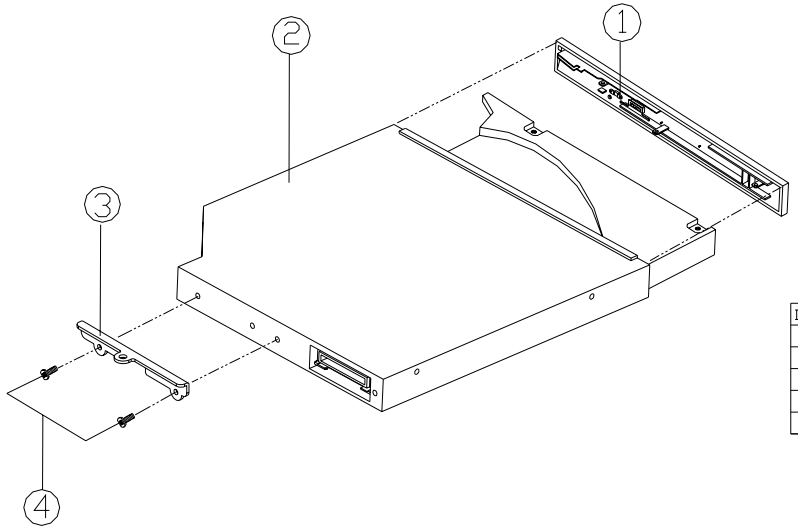
CD-ROM Drive - QSI (M27ES)

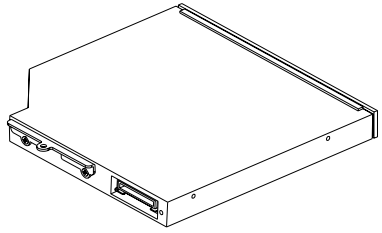
Figure 4
CD-ROM Drive (M27ES)



ITEM	PART NAME	PART NO	REMARK
1	QSI CD-ROM BEZEL MODULE	42-27C7Z-200	FOR D270S
1	QSI CD-ROM BEZEL MODULE	42-M270Z-100	FOR M270S
2	CD-ROM 5 1/4" 24X CAB SLIM QSI 12.7mm	85-607□X-C00	SCR-242
3	CD-ROM DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

CD-RW Drive - Toshiba (M27ES)



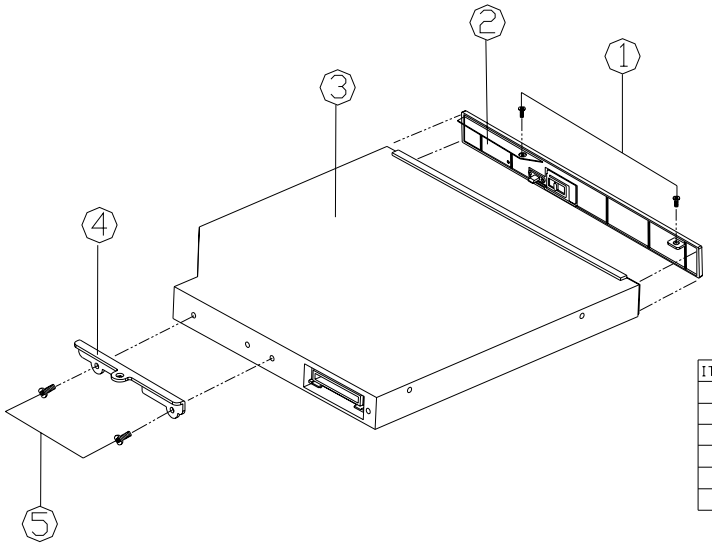


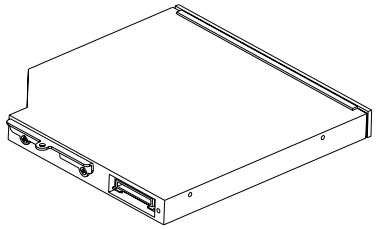
ITEM	PART NAME	PART NO	REMARK
1	TOSHIBA CD-RW BEZEL MODULE	42-27C7W-500	FOR D270S
1	CD-RW BEZEL MODULE FOR TOSHIBA	42-M270W-100	FOR M270S
2	CD-R/RW 5 1/4" 16X TOSHIBA 12.7mm	85-807GX-T00	SR-C8102
3	DVD-ROM BEZEL BRACKET FOR TOS.	33-32031-000	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Figure 5
CD-RW Drive (M27ES)

Combo Drive - QSI (M27ES)

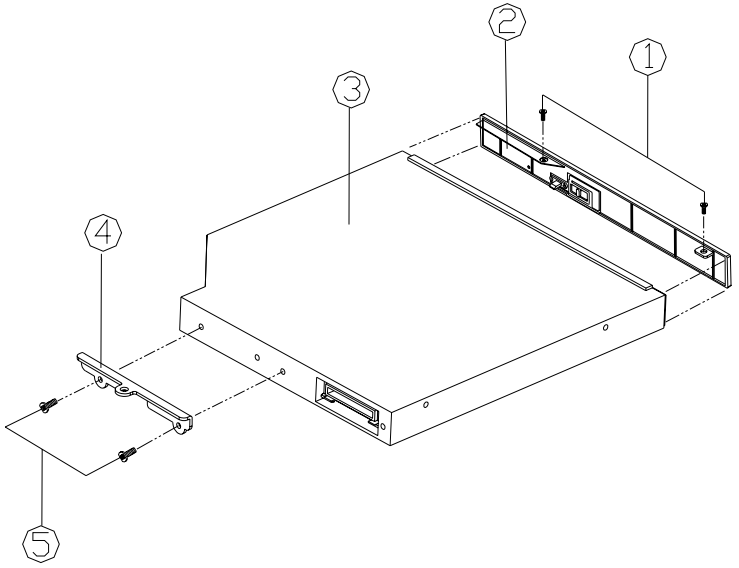
Figure 6
Combo Drive (M27ES)

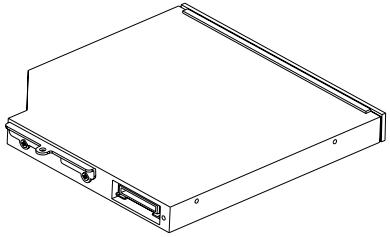




ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	QSI COMBO BEZEL MODULE FOR 27"S/4200	42-27C7X-500	FOR D270S
2	QSI COMBO BEZEL MODULE FOR 27"S/4200	42-M270X-100	FOR M270S
3	CD-RW/DVD 5 1/4" 8X 12.7mm	85-9078X-C00	QSI<SBW-081>
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

DVD-ROM Drive - QSI (M27ES)



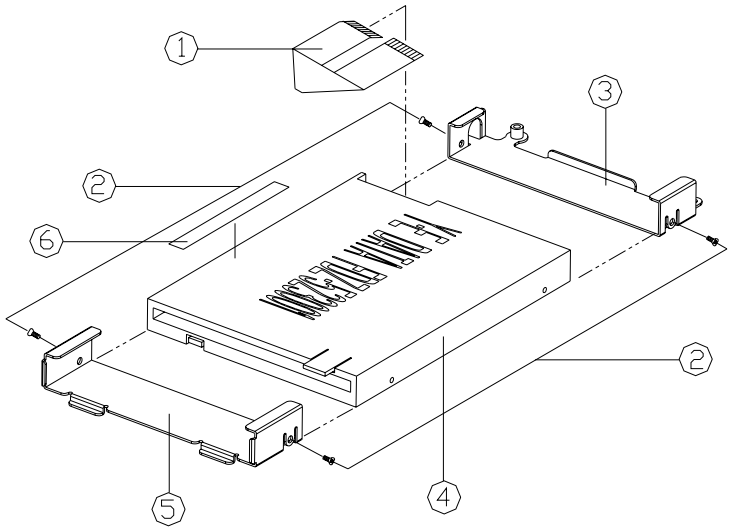


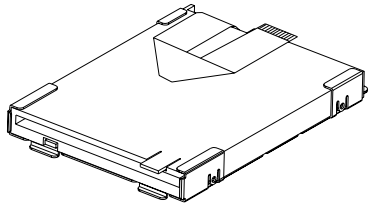
ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	QSI DVD BEZEL MODULE	42-27C7V-102	FOR D270S
2	QSI DVD BEZEL MODULE	42-M270V-200	FOR M270S
3	DVD 5 1/4" 8X 12.7mm	85-7078X-C01	QSI(SDR-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

Figure 7
DVD-ROM Drive (M27ES)

Floppy Disk Drive (M27ES)

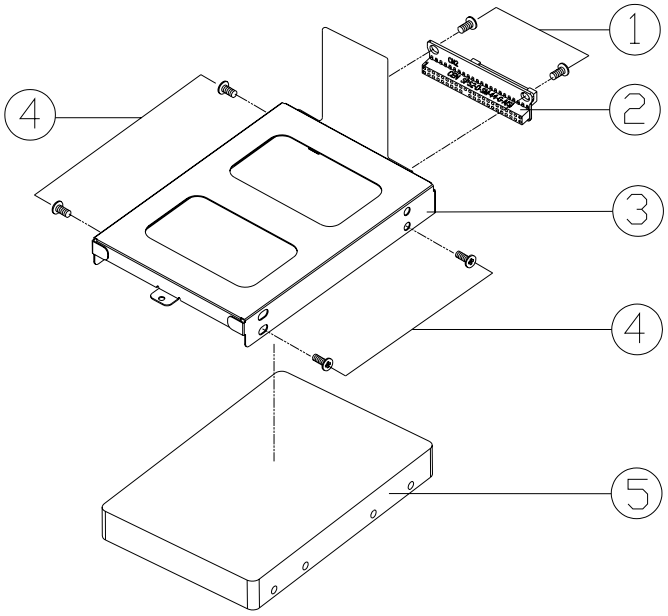
Figure 8
Floppy Disk Drive (M27ES)

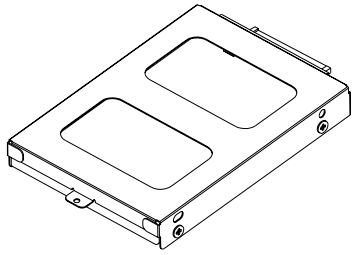




ITEM	PART NAME	PART NO	REMARK
1	FFC CABEL FOR FDD	43-22009-002	
2	SCREW M2.6*3.5L F NI ICT	35-21126-350	
3	FDD BRACKET (B)	33-22004-000	
4	3.5" FDD 1.44MB 12.7mm	85-11700-Y01	YD-702J-6637J
5	FDD BRACKET (F)	33-22003-000	
6	GASKET (60*9*0.5t) FOR 2XC/S HDD CASE&I/O	47-00190-601	

Hard Disk Drive (M27ES)





ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2L KI BZ ICT	35-B6120-2RA	
2	HDD CONVERTER BOARD	77-22004-D03A	
3	HDD HOLDER AND MYLAR MODULE	79-2200N-0A1	
4	SCREW M3*4L KI NI ICT	35-B1130-4RB	
5	2.5" HDD MHK2060AT 6GB 9.5mm	85-01860-F00	FUJITSU
5	2.5" HDD MK6014MAP 6GB 9.5mm	85-01860-T00	TOSHIBA

Figure 9
HDD Drive (M27ES)

Top (D27ES)

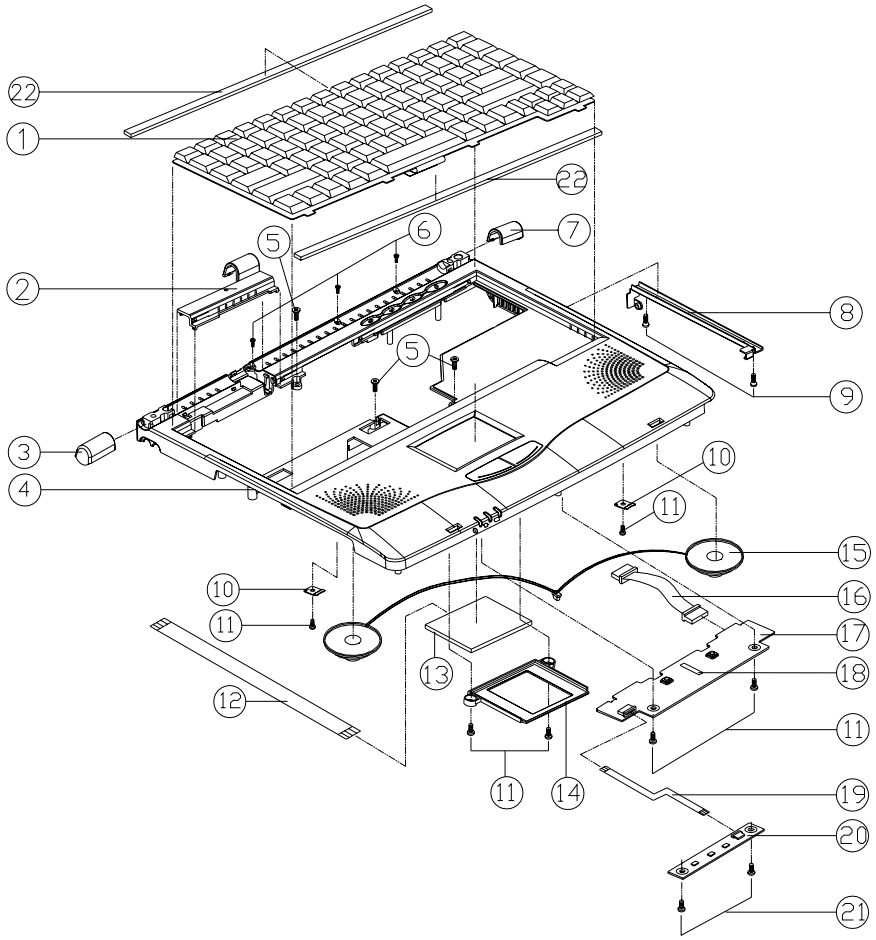
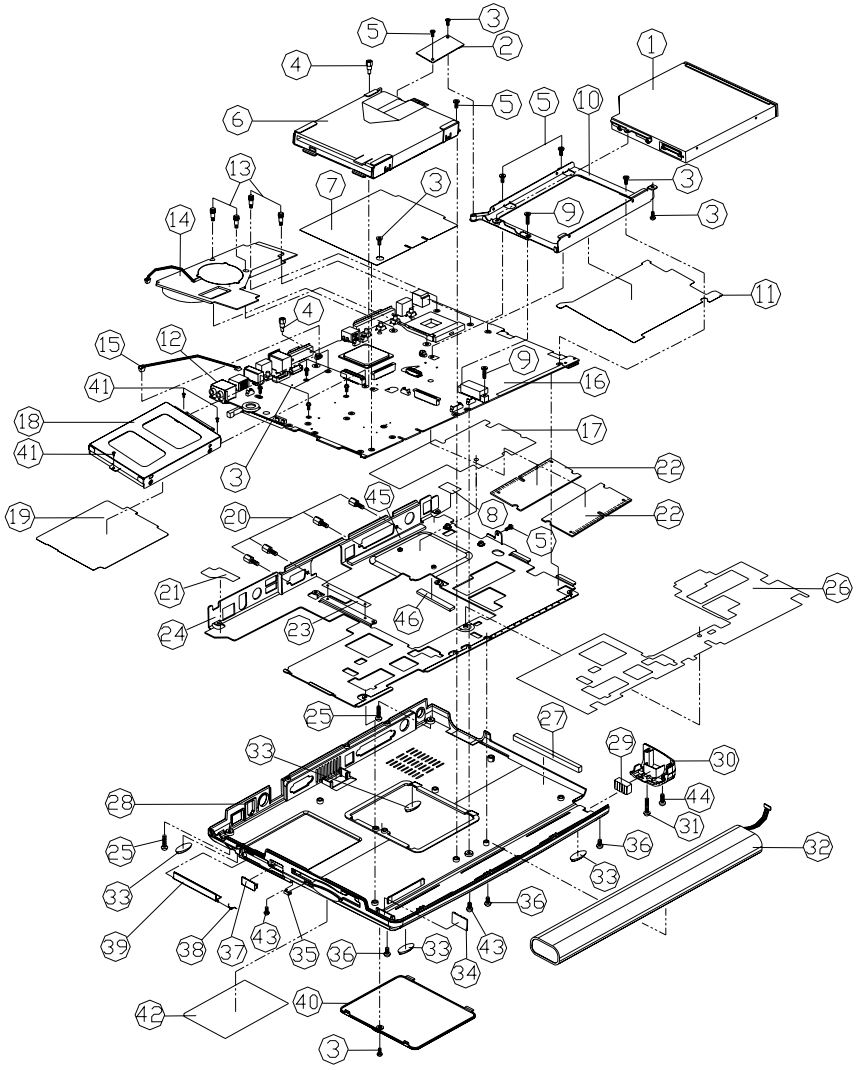


Figure 1
Top (D27ES)

ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-22008-7G0	
2	LCD CABLE COVER MODULE	42-M2701-200	
3	HINGE COVER(L)	42-M270Y-020	
4	TOP CASE MODULE	39-27002-019	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	SCREW M2*4L K1 BNI ICT	35-B9120-4R0	
7	HINGE COVER(R)	42-M270Y-010	
8	CD-ROM BRACKET 2700(S)	33-2700Z-011	
9	SCREW M2*3L F NI	35-21120-3R0	
10	SPEAKER BRACKET	33-22017-000	
11	SCREW M2.5*3L K1 NI ICT	35-B1125-3RA	
12	FFC CABLE 8P 85mm FOR GLIDE POINT	27-9350C-850	
13	TOUCHPAD ALPS KGDDHQ943A-B	49-00102-011	
14	TOUCH PAD HOLDER MODULE 2200	79-2200M-0A0	
15	SPK. WITH CABLE 28mm 1W	23-52810-19B	
16	WIRE CABLE FOR CLICK BOARD	43-22008-001	
17	SWITCH BOARD	77-27001-D01	
18	MYLAR FOR T/P BOARD 260	40-26009-000	
19	CABLE FOR LED BOARD	43-2700S-011	
20	LED BOARD	77-27002-D03	
21	SCREW M2*4L KI BN ICT	35-B1120-4R0-A	
22	導電布 FOR KEYBOARD	47-22S97-010	

Bottom (D27ES)



ITEM	PART NAME	PART NO	REMARK
1	CD-ROM ASS'Y DWG	79-D270Z-010	Reference Ass'y Dwg (99-M2705-050)
1	DVD-ROM ASS'Y DWG	79-D270V-020	Reference Ass'y Dwg (99-M2705-060)
1	CD-RW ASS'Y DWG	79-D270W-010	Reference Ass'y Dwg (99-M2705-070)
1	COMBO ASS'Y DWG	79-D270X-010	Reference Ass'y Dwg (99-M2705-080)
2	MDC MODEM MODULE	76-32200-003	
3	SCREW M2.5*4.0L K1 BNI ICT	35-B9125-4R0	
4	STANDOFF FOR M/B SUM22	34-22002-000	
5	SCREW M2.5*5L K1 NI ICT	35-B1125-5R0	
6	FDD ASS'Y DWG	79-2202J-011	Reference Ass'y Dwg (99-22005-070)
7	FDD MYLAR(130*W96*t0.1)mm	40-22003-000	
8	MYLAR(20*13*0.3t PC/BK)FOR 2XC/S DC-IN C	40-00120-150	
9	SCREW M2*10L I NI ICT	35-C1120-100-1	
10	CD-ROM/DVD BRACKET	33-2200Z-012	
11	CD-ROM MYLAR(L122*W104*t0.1)mm	40-2205Z-010	
12	AUDIO JACK SHIELDING	33-2200S-020	
13	HEX STUD FOR CPU HEATSINK	34-2200N-012	
14	HEAT SINK MOUDLE M270S	31-M220N-100	
14	HEAT SINK MOUDLE D220S	31-D220N-100	
15	CABLE FOR MDC TO M/B 137mm 2P 2200T	43-22T0U-010	
16	MAIN BOARD	77-M22E0-D0X	
17	MYLAR FOR CPU	40-22T53-010	
18	HDD ASS'Y (W/O HDD)	79-22021-011	Reference Ass'y Dwg (99-22005-060)
19	HDD MYLAR FOR M/B	40-22002-002	
20	HEX STUD SUM22 NI-PL 11mm	34-07009-011-A	
21	AUDIO MYLAR(L22*W15*t0.15)mm	40-22007-000	
22	64M SDRAM*16 PC-100	76-0017U-AB0	
22	64M SDRAM*16 PC-100	76-0017U-AD0	
23	MYLAR FOR M/B TO I/O BRACKET	40-22S0S-020	
24	I/O BRACKET	33-M220S-010	
25	SCREW M2.5*8L B BN ICT	35-49125-8R0	
26	MYLAR OF MB	40-22010-002	
27	(82*5*5.5t) FOR 2XC/S CD-ROM	47-00190-821	
28	BOTTOM CASE 2700T	39-27T13-01A	
29	BATTERY COVER RUBBER	47-22001-020	
30	BATTERY COVER	42-2707M-011	
31	SCREW M2.5*23L K1 NI ICT	35-B1125-230	
32	BATTERY FOR GLW 8Cell 2000mAH	87-22S8S-419	
32	BATTERY FOR GLW 8Cell 2000mAH	87-22S8S-4E9	
33	RUBBER FOOT	47-22013-010	
34	BATTERY RUBBER	47-22001-010	
35	FDD LENS	39-22021-000	
36	SCREW M2*4L K1 BNI ICT	35-B9120-4R0	
37	IR LENS	39-22020-000	
38	CARD BUS DOOR SPRING Ø0.2mm	38-22001-001	
39	DOOR FOR CARBUS GARAGE	42-M270P-020	
40	RAM COVER	42-D2709-010	
41	SCREW M2*4L K1 NI ICT	35-B1120-4R0-A	
42	PRODUCT LABEL FOR D270E	45-D27E3-010	
43	SCREW M2.5*6L B BN ICT	35-49125-6R0	
44	SCREW M2.5*14L K1 BNI ICT	35-B9125-140	
45	CONDUCTIVE GASKET (L100*W10*0.5t)mm	47-00190-10A	
46	GASKET FOR I/O BRACKET (7*38*2)	47-00190-380	

Figure 2
Bottom (D27ES)

LCD 14" (D27ES)

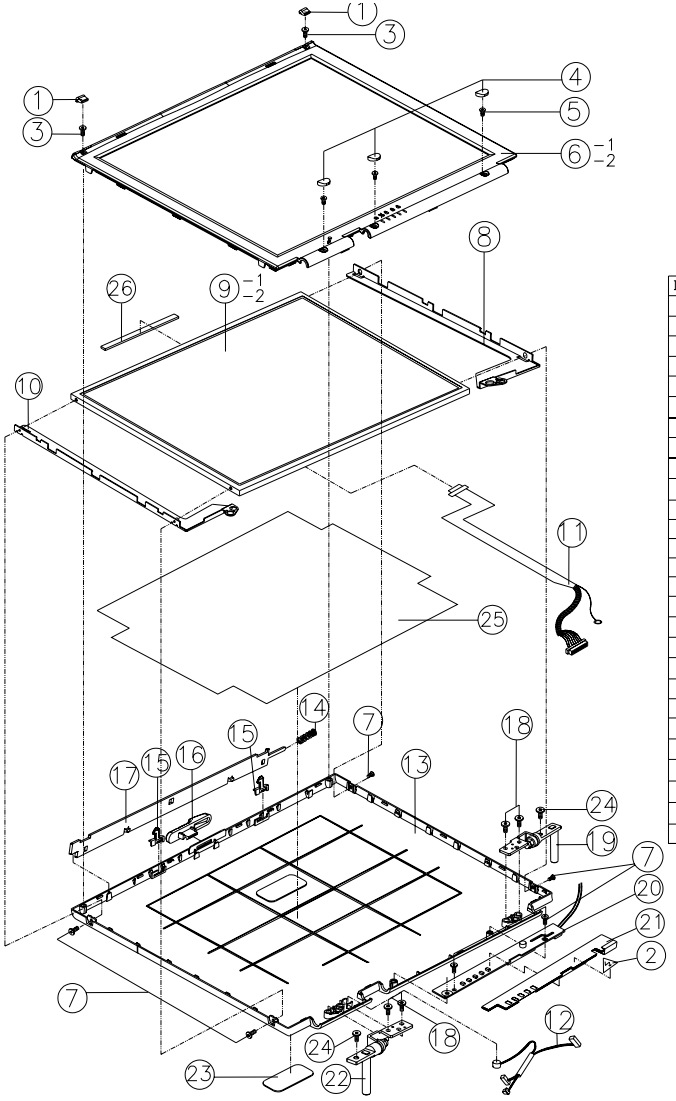
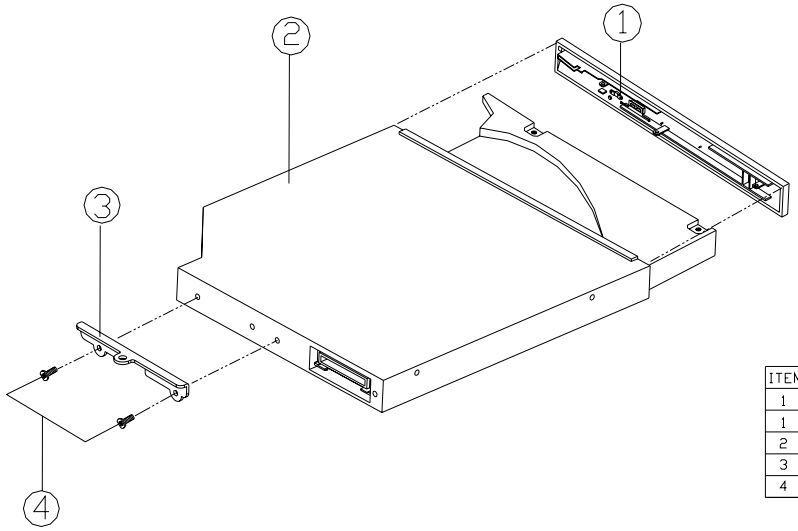
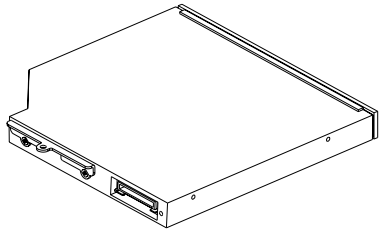


Figure 3
LCD 14" (D27ES)

ITEM	PART NAME	PART NO	REMARK
1	DISPLAY RUBBER PAD(TOP)	47-22021-010	
2	ELECTRIC SHOCK CAUTION 82H	45-82004-000	
3	SCREW M2*5L I BZ ICT	35-C6120-5R0	
4	DISPLAY RUBBER RAD(BOTTOM)	47-22021-020	
5	SCREW M2.5*0.45P*6L KI NI ICT	35-B1125-6R0	
6	LCD FRONT PANEL (14.1)& LENS MODULE	39-27001-217	UNIPAC/IBM
7	SCREW M2*4L KI NI ICT	35-B1120-4RB	
8	LCD BRACKET (NEW-R) FOR UNIPAC 14.1"T	33-27001-310	
9-1	LCD T UNIPAC UB141X03 14.1" XGA 6.0mm	50-J2260-U09	
9-2	LCD T IBM ITXG77-E53-029 14.1"XGA	50-J2287-E01	
10	LCD BRACKET (NEW-L) FOR UNIPAC 14.1"	33-27001-320	
11	WIRE CABLE FOR UNIPAC 14.1"	43-22001-301	
12	WIRE CABLE FOR INVERTER L=100mm	43-22006-005	
13	LCD BACK COVER	39-27001-02F	
14	LCD SPRING Ø0.35mm SUS 260	38-26004-002	
15	LCD HOOK PC/ABS 2200	42-270A1-011	
16	KNOB FOR LCD HOOK	42-270A1-023	
17	LCD LATCH BRACKET	33-22001-012	
18	SCREW M2.5*5L K1 BNI ICT NY	35-B9125-5R0	
19	HINGE (R) MODULE 22/2700	79-2200Y-013	
20	INVERTER BOARD VD1.0	77-M220R-D03	
21	INVERTER MYLAR,MYLAR(L133*W38*t0.125)	40-22004-001	
22	HINGE (L) MODULE 22/2700	79-2200Y-023	
23	NAME PLATE "NOTEBOOK"	45-22001-010	
24	SCREW M2.5*8L B BN ICT NY	35-49125-8R0	
25	MYLAR FOR LCD BACK EMI(BK)	40-22S01-020	
26	SPONGE (85*5*2T) FOR 2200C/S 14.1" UNIPAC	47-00191-060	

CD-ROM Drive - QSI (D27ES)



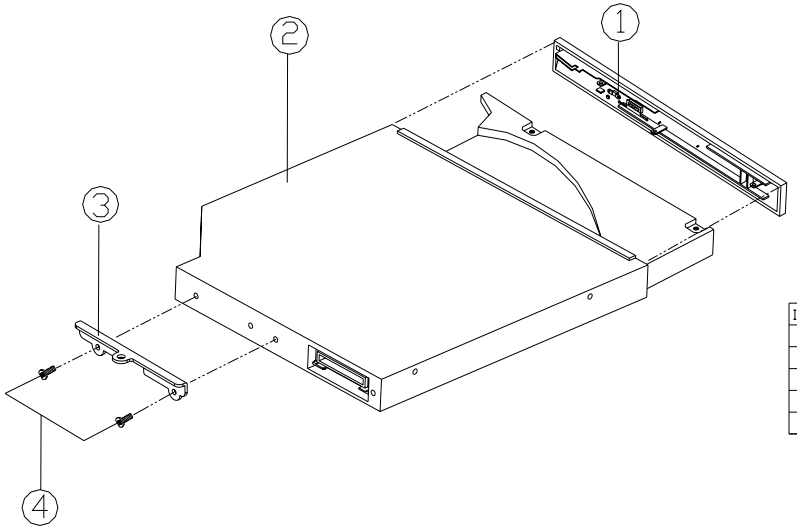


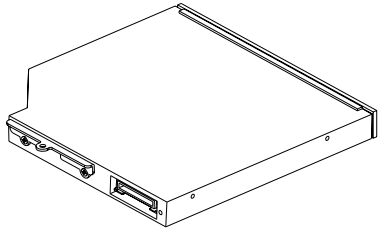
ITEM	PART NAME	PART NO	REMARK
1	QSI CD-ROM BEZEL MODULE	42-27C7Z-200	FOR D270S
1	QSI CD-ROM BEZEL MODULE	42-M270Z-100	FOR M270S
2	CD-ROM 5 1/4" 24X CAB SLIM QSI 12.7mm	85-607□X-C00	SCR-242
3	CD-ROM DVD FIXED BRACKET	33-22002-001	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Figure 4
CD-ROM Drive (D27ES)

CD-RW Drive - Toshiba (D27ES)

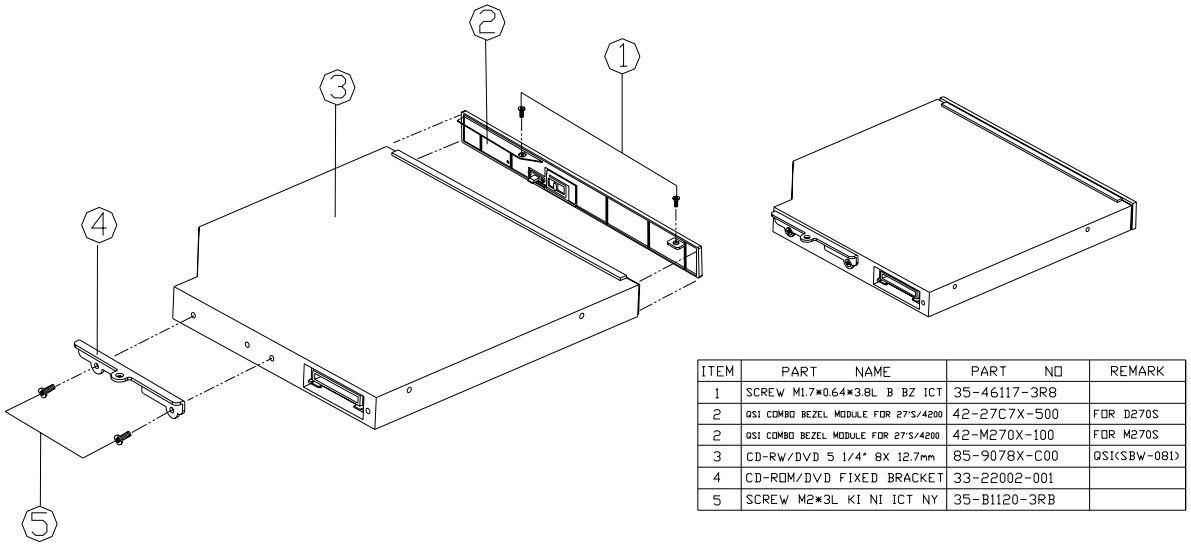
Figure 5
CD-RW Drive (D27ES)





ITEM	PART NAME	PART NO	REMARK
1	TOSHIBA CD-RW BEZEL MODULE	42-27C7W-500	FOR D270S
1	CD-RW BEZEL MODULE FOR TOSHIBA	42-M270W-100	FOR M270S
2	CD-R/RW 5 1/4" 16X TOSHIBA 12.7mm	85-807GX-T00	SR-C8102
3	DVD-ROM BEZEL BRACKET FOR TOS.	33-32031-000	
4	SCREW M2*3L K1 NI ICT	35-B1120-3RB	

Combo Drive - QSI (D27ES)

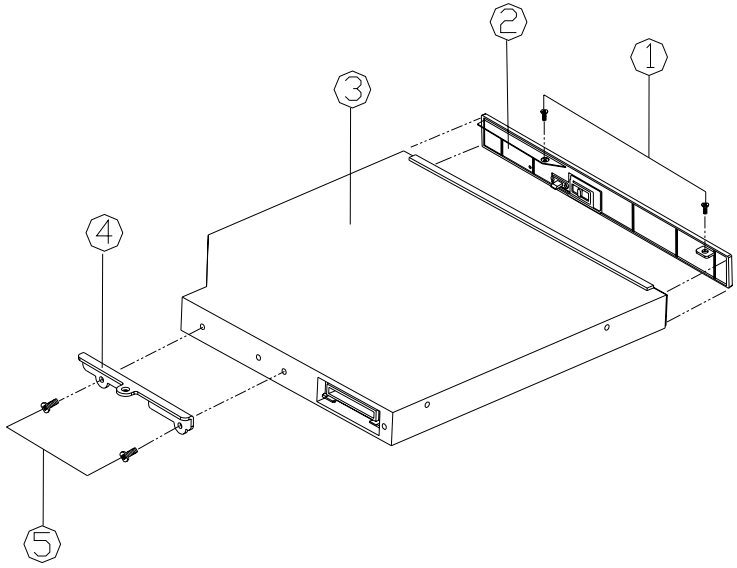


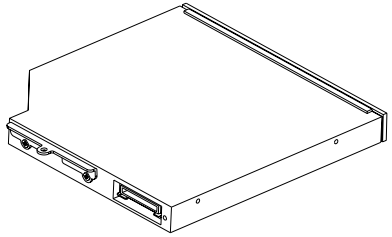
ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	QSI COMBO BEZEL MODULE FOR 27'S/4200	42-27C7X-500	FOR D270S
2	QSI COMBO BEZEL MODULE FOR 27'S/4200	42-M270X-100	FOR M270S
3	CD-RW/DVD 5 1/4" 8X 12.7mm	85-9078X-C00	QSI(SBW-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

Figure 6
Combo Drive (D27ES)

DVD-ROM Drive - QSI (D27ES)

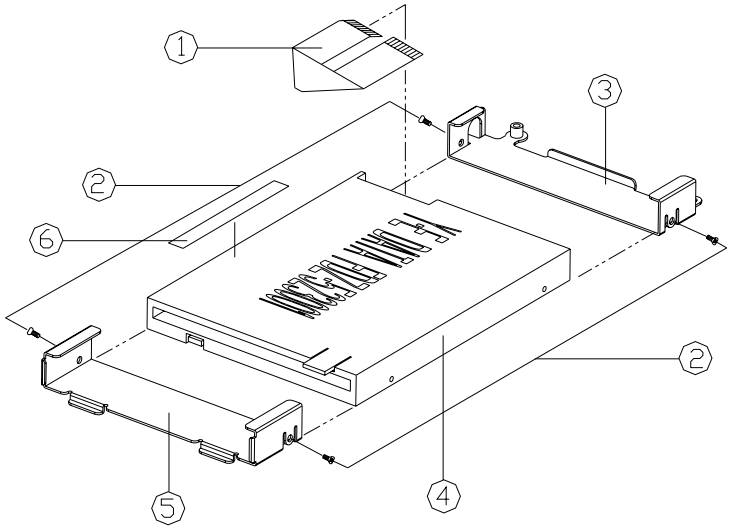
Figure 7
DVD-ROM Drive (D27ES)

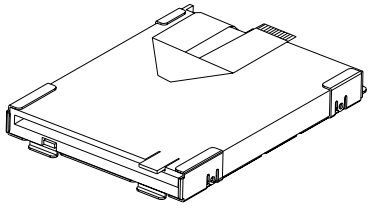




ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.7*0.64*3.8L B BZ ICT	35-46117-3R8	
2	QSI DVD BEZEL MODULE	42-27C7V-102	FOR D270S
2	QSI DVD BEZEL MODULE	42-M270V-200	FOR M270S
3	DVD 5 1/4" 8X 12.7mm	85-7078X-C01	QSI(SDR-081)
4	CD-ROM/DVD FIXED BRACKET	33-22002-001	
5	SCREW M2*3L KI NI ICT NY	35-B1120-3RB	

Floppy Disk Drive (D27ES)



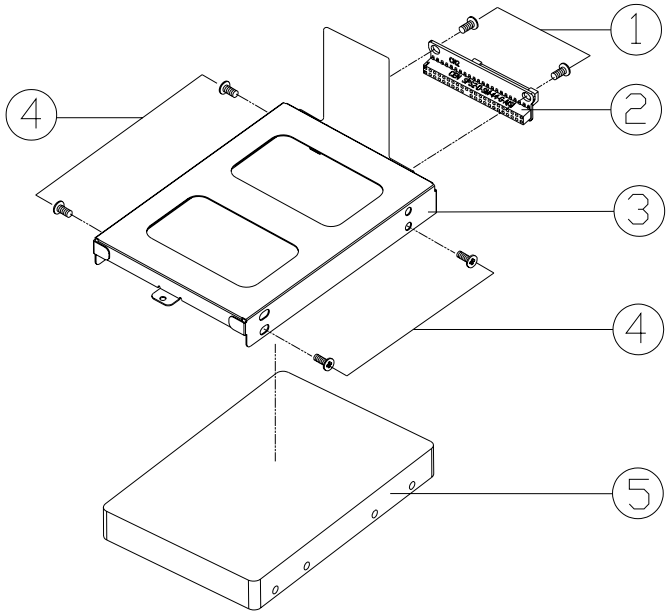


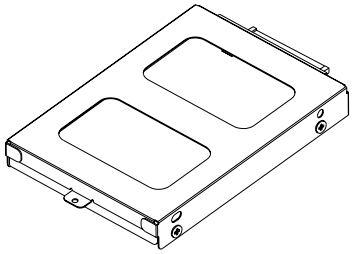
ITEM	PART NAME	PART NO	REMARK
1	FFC CABEL FOR FDD	43-22009-002	
2	SCREW M2.6*3.5L F NI ICT	35-21126-350	
3	FDD BRACKET (B)	33-22004-000	
4	3.5" FDD 1.44MB 12.7mm	85-11700-Y01	YD-702J-6637J
5	FDD BRACKET (F)	33-22003-000	
6	GASKET (60*9*0.5t) FOR 2XC/S HDD CASE&I/O	47-00190-601	

Figure 8
Floppy Disk Drive (D27ES)

Hard Disk Drive (D27ES)

Figure 9
HDD Drive (D27ES)





ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2L KI BZ ICT	35-B6120-2RA	
2	HDD CONVERTER BOARD	77-22004-D03A	
3	HDD HOLDER AND MYLAR MODULE	79-2200N-0A1	
4	SCREW M3*4L KI NI ICT	35-B1130-4RB	
5	2.5" HDD MHK2060AT 6GB 9.5mm	85-01860-F00	FUJITSU
5	2.5" HDD MK6014MAP 6GB 9.5mm	85-01860-T00	TOSHIBA

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the systems PCB's.

Printed Circuit Board	Part No. of the Latest Version
System Board	71-M2200-D06
Inverter Board	71-M220R-D03

Table 1
Schematic Diagrams

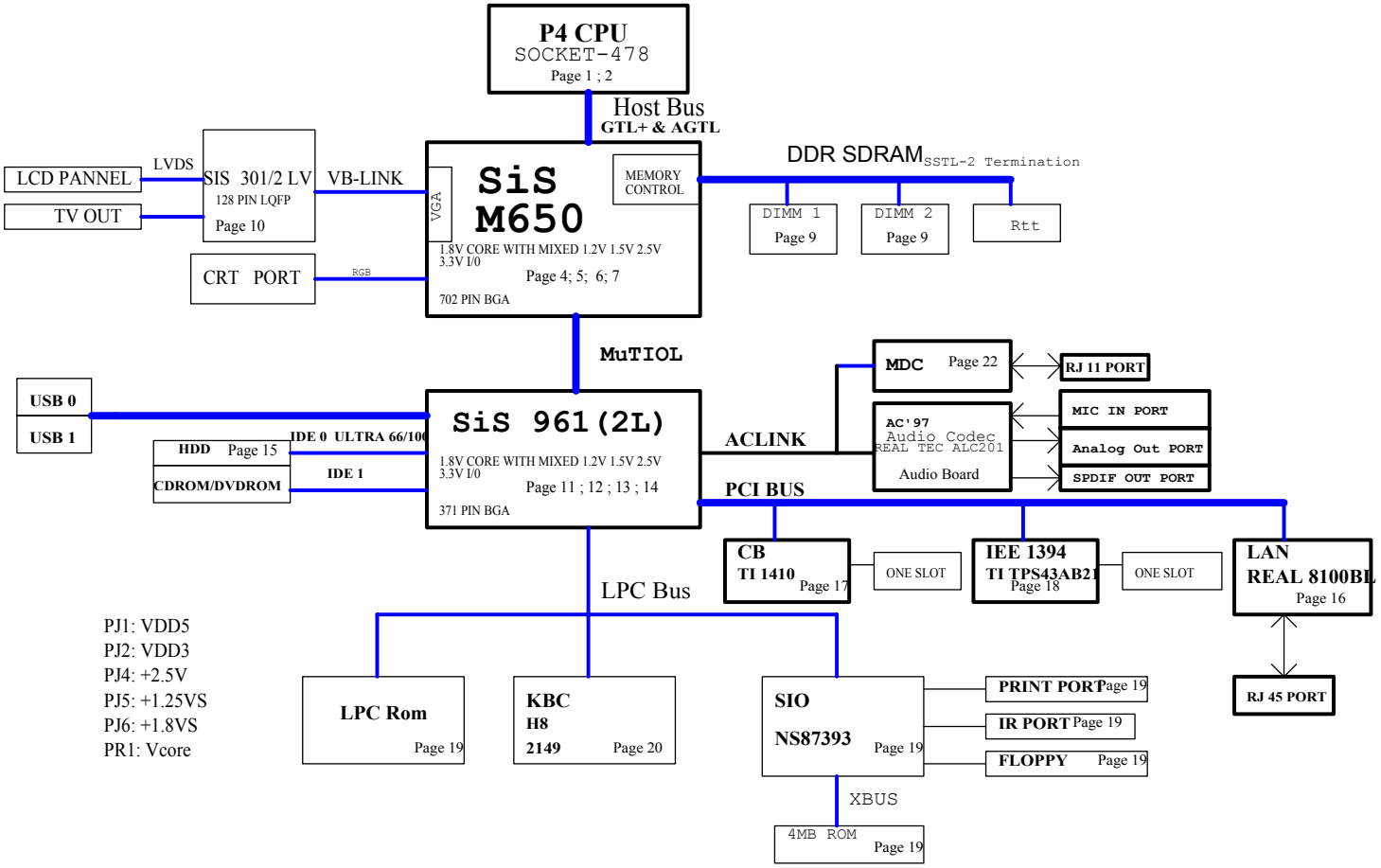
The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	*LVDS Interface (SiS301/2LV) - Page B - 13*	*Audio Codec & AMP - Page B - 24*
Table - Page B - 3	*961A-1 (PCI/IDE/HyperZip) - 1 of 4 - Page B - 14*	*Fan & Modem Conn - Page B - 25*
CPU (Socket 478) 1 of 2 - Page B - 4	*961A-2 (Misc Signals) - 2 of 4 - Page B - 15*	*CPU VCORE - Page B - 26*
CPU (Socket 478) 2 of 2 - Page B - 5	*961A-3 (USB) - 3 of 4 - Page B - 16*	*System Power 1 SCH (+3V, +5V, +12V) - Page B - 27*
Clock Generator - Page B - 6	*961A-4 (Power & RTC) - 4 of 4 - Page B - 17*	*System Power 2 SCH (+2.5V, +1.25V) - Page B - 28*
650-1 (Host/AGP) - 1 of 4 - Page B - 7	*IDE, LVDS, Inverter Conn - Page B - 18*	*+1.8V, 3VH8, VCCID, PWRSW - Page B - 29*
650-2 (Memory for DDR) - 2 of 4 - Page B - 8	*PCI LAN RTL8100B - Page B - 19*	*Charger-PWM - Page B - 30*
650-3 (HyperZip/VGA/Misc) - 3 of 4 - Page B - 9	*PCMCIA PCI1410 - Page B - 20*	*Hole - Page B - 31*
650-4 (Power) - 4 of 4 - Page B - 10	*1394 TSB43AB21 - Page B - 21*	*Inverter Board - Page B - 32*
DDR SDRAM DIMM 1 & DIMM2 - Page B - 11	*LPC Super I/O NS393 - Page B - 22*	
DDR SSTL-2 Termination Resistors - Page B - 12	*LPC H8 - Page B - 23*	

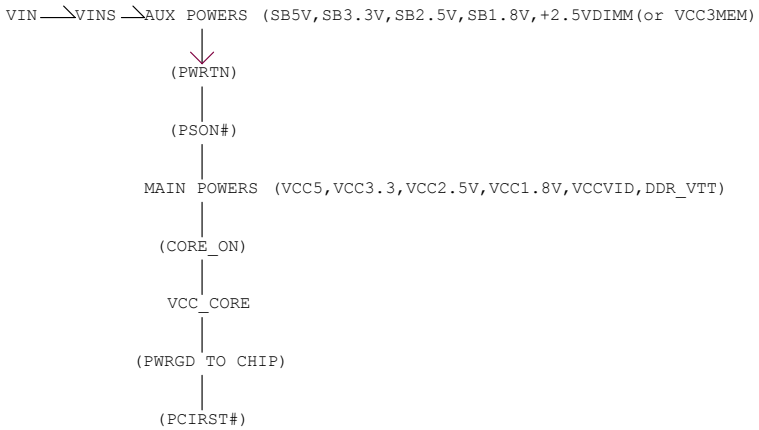
System Block Diagram

Sheet 1 of 31
System Block Diagram

M220 System Block Diagram



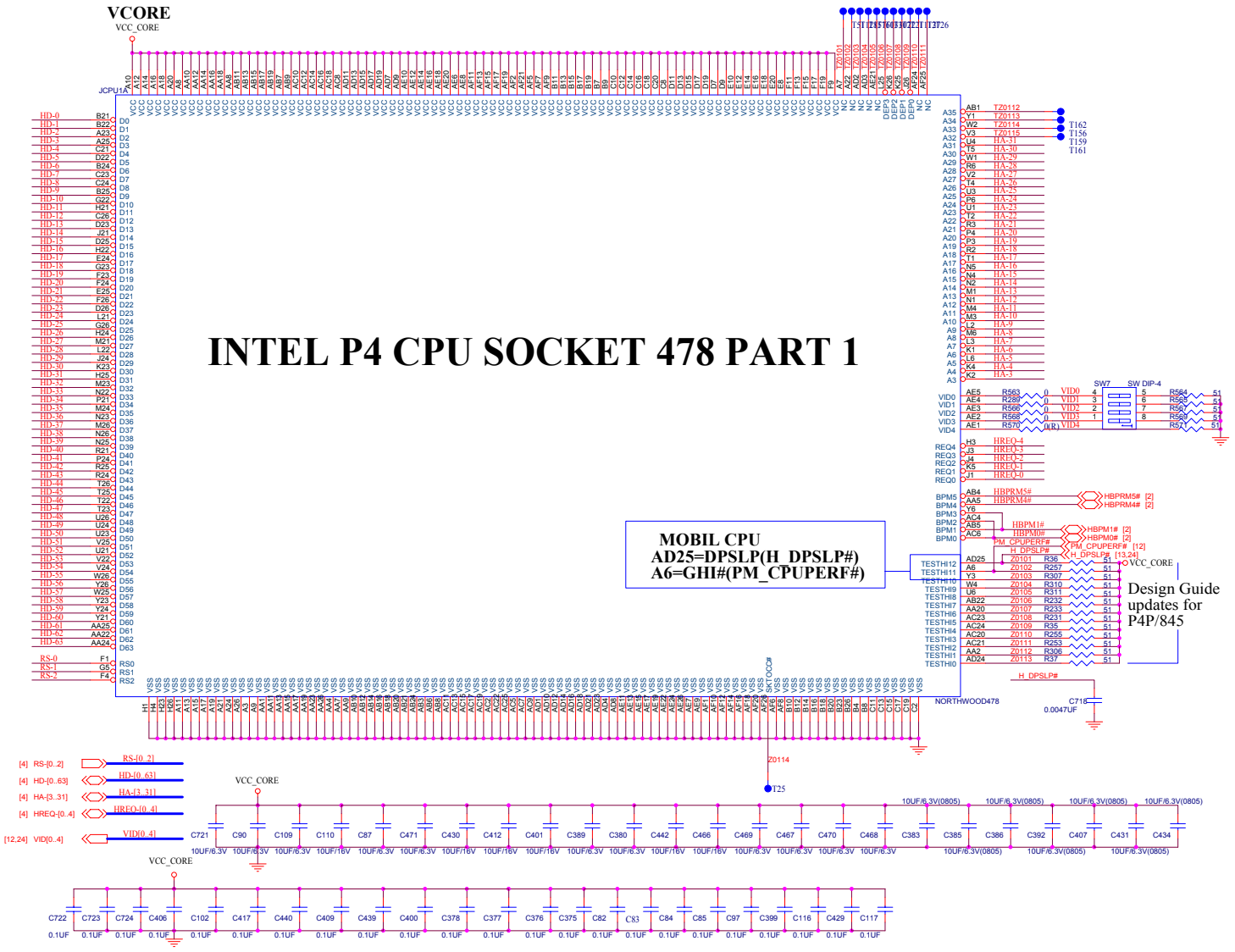
Table



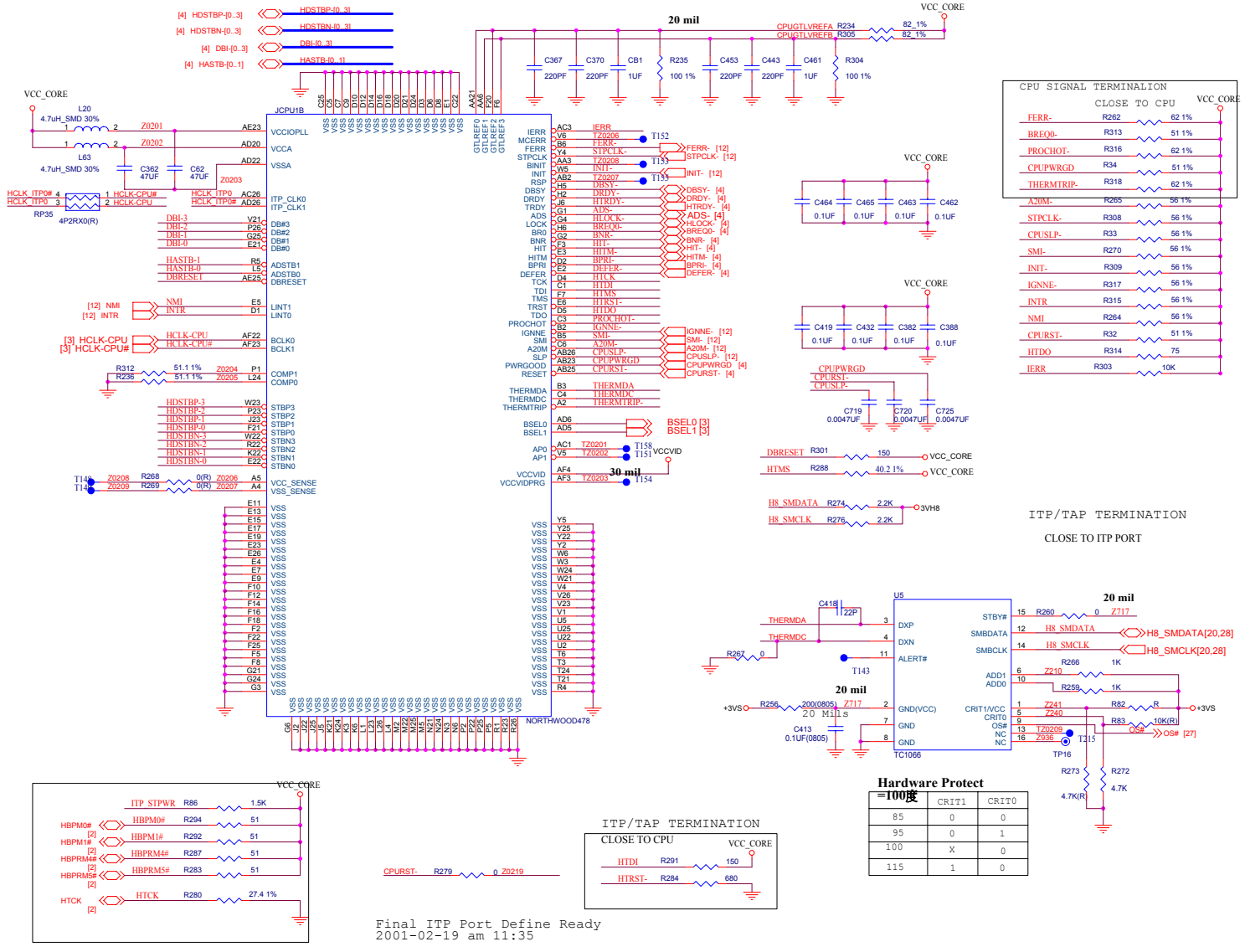
DEVICE			
SIS650(VGA)	INTA#		
CHRONTEL CH0717	INTA#		
1394 TI TBA43AB22	INTB#	REG1 GNT1	AD22
CB TI 1410A	*INTB# INTC#	REG0 GNT0	AD23
LAN REL8139C	INTD#	REG2 GNT2	AD21
MINI PCI	INTC# INTD#	REG3 GNT3	AD24 AD25

CPU (Socket 478) 1 of 2

Sheet 3 of 31
CPU 1 of 2



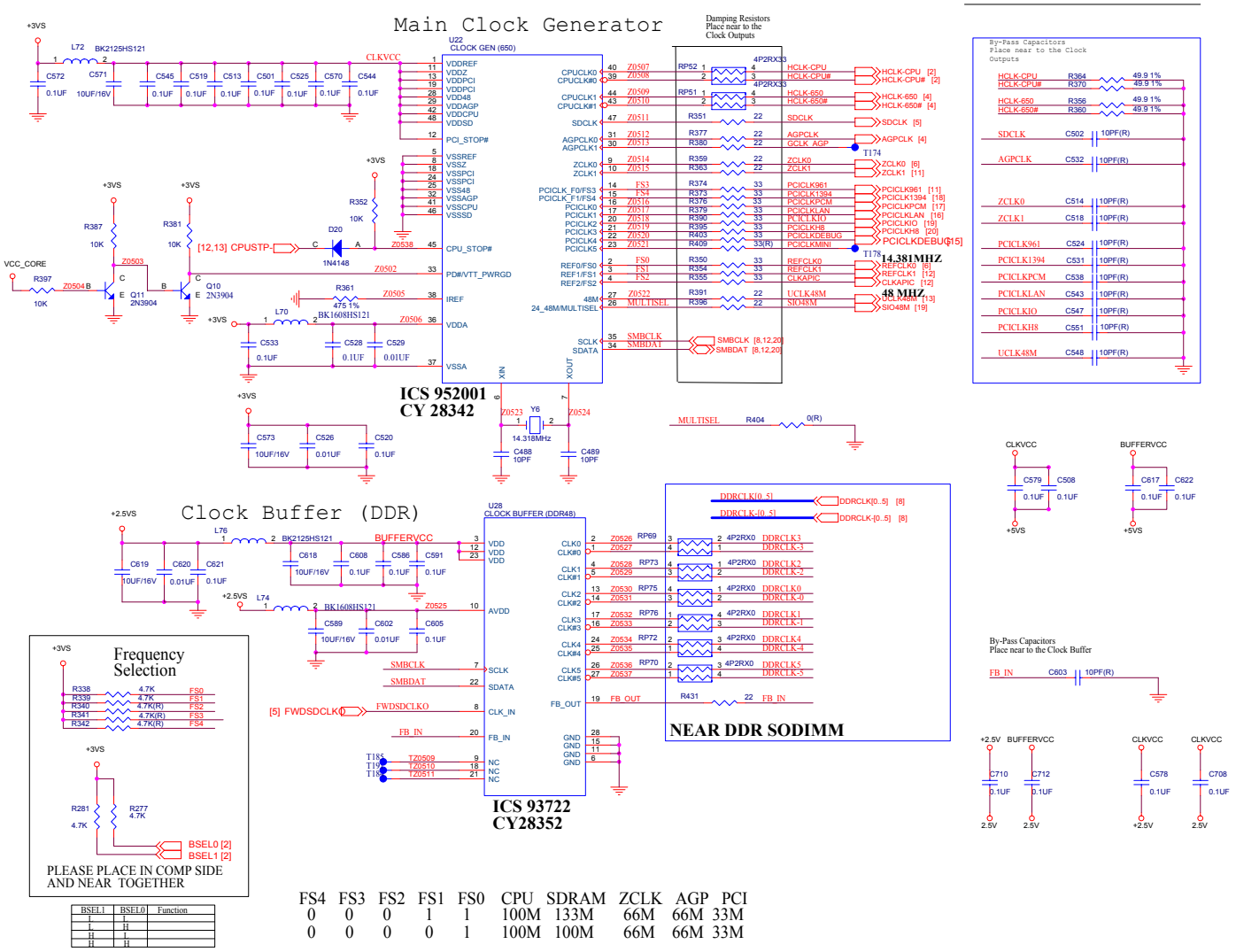
CPU (Socket 478) 2 of 2



Sheet 4 of 31
CPU 2 of 2

Clock Generator

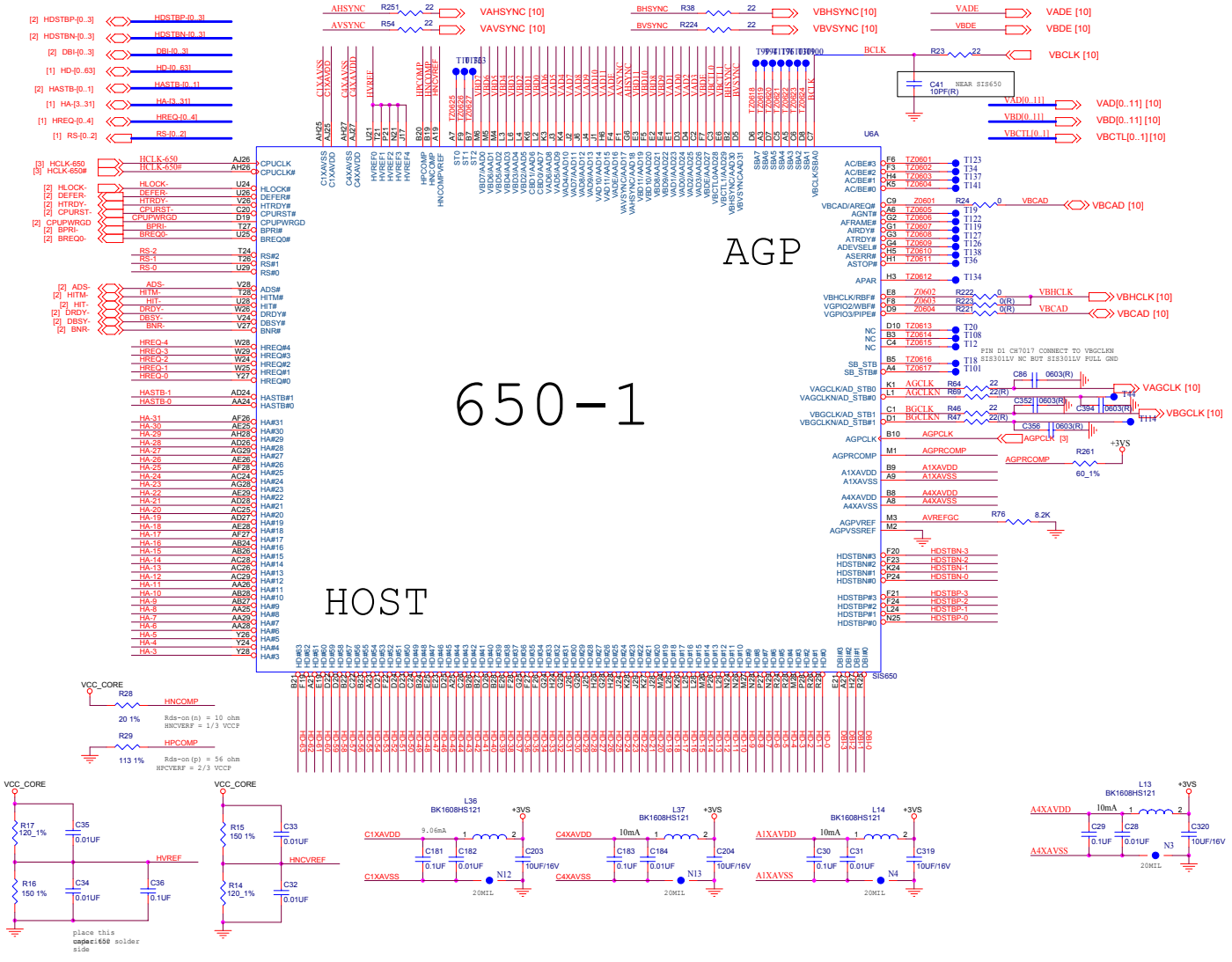
Sheet 5 of 31
Clock Generator



BSEL1	BSEL0	Function
L	L	
L	H	
H	L	
H	H	

FS4	FS3	FS2	FS1	FS0	CPU	SDRAM	ZCLK	AGP	PCI
0	0	0	1	1	100M	133M	66M	66M	33M
0	0	0	0	1	100M	100M	66M	66M	33M

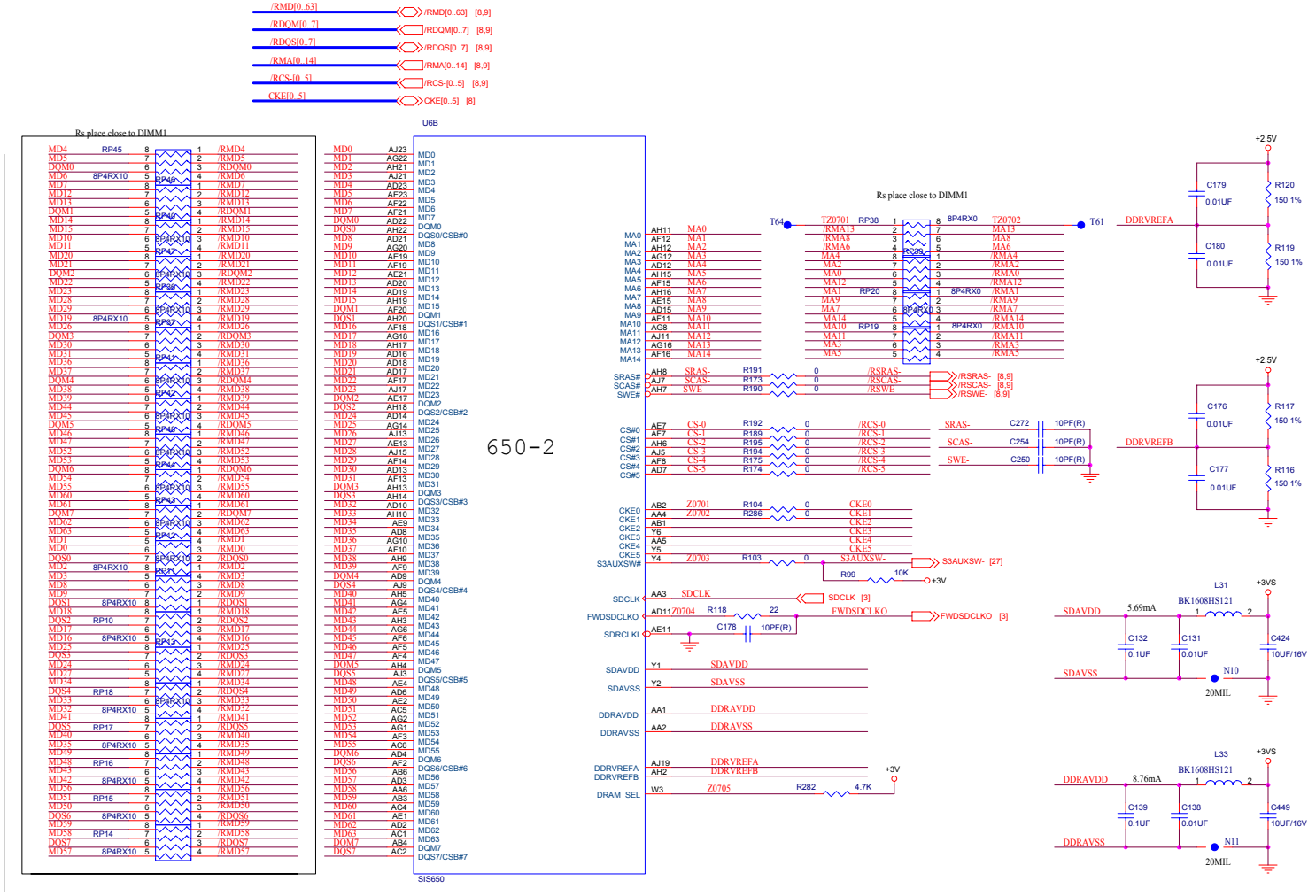
650-1 (Host/AGP) - 1 of 4



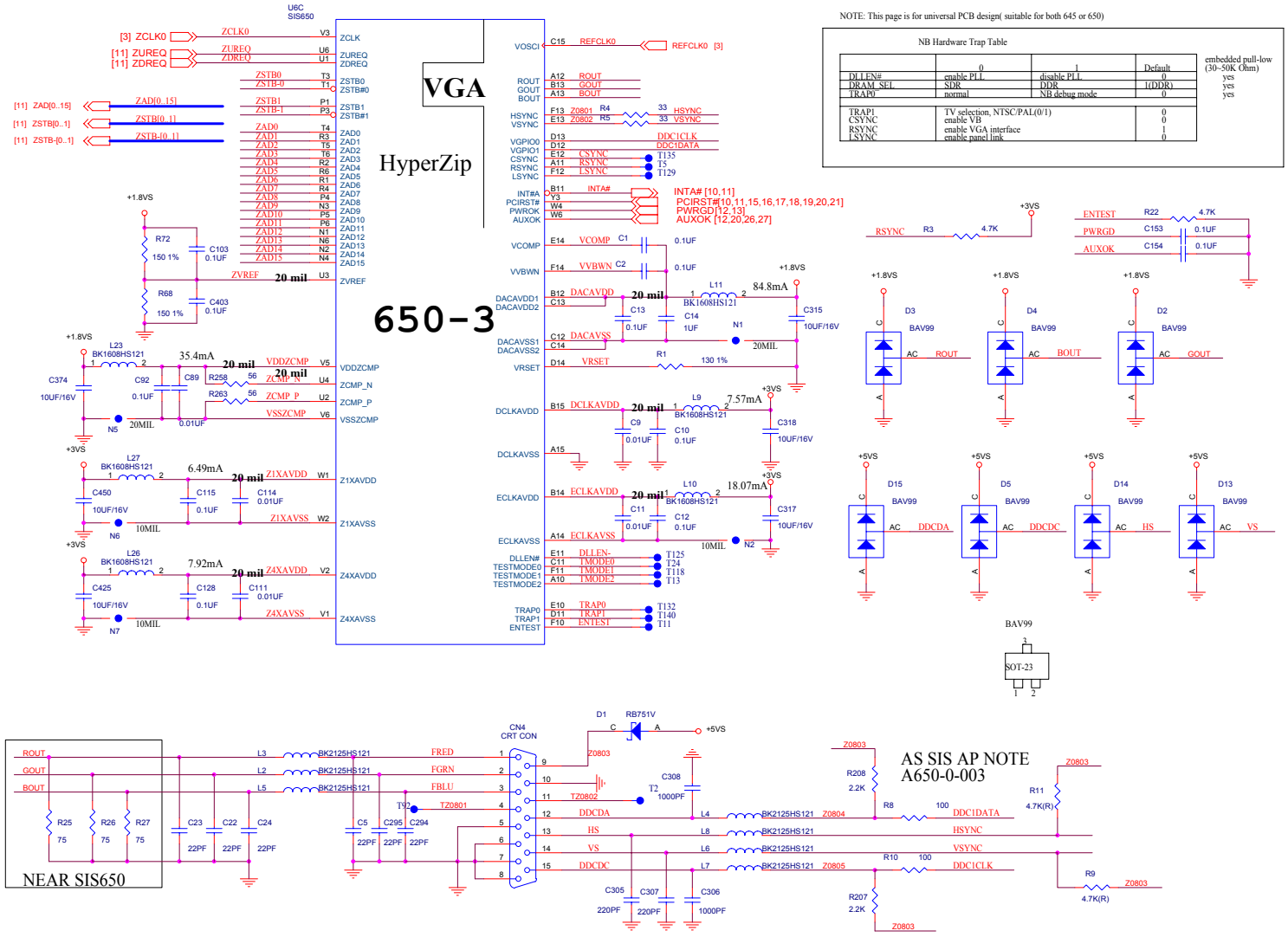
Sheet 6 of 31
650-1 (Host/AGP)
1 of 4

650-2 (Memory for DDR) - 2 of 4

Sheet 7 of 31
650-2
(Memory for DDR)
2 of 4



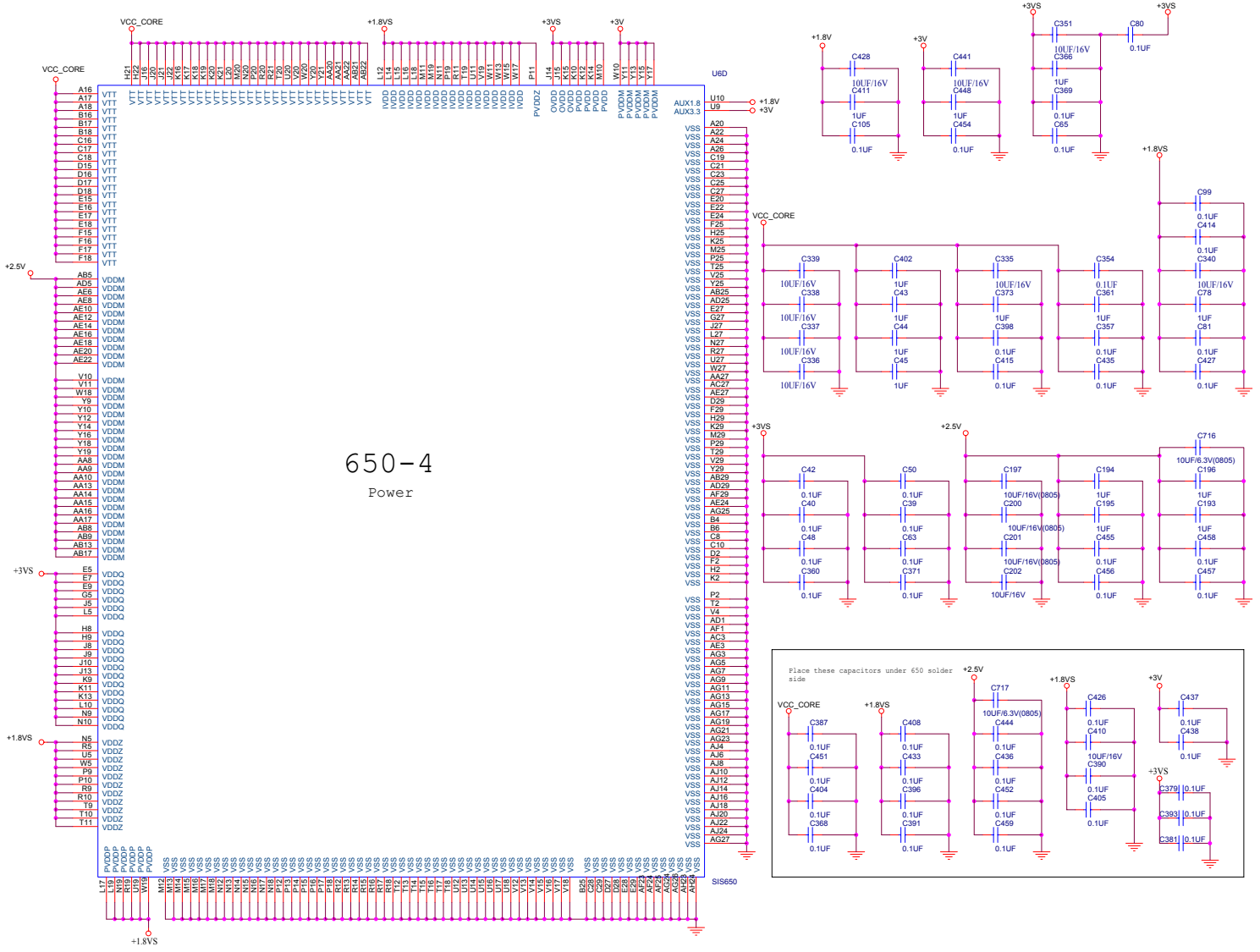
650-3 (HyperZip/VGA/Misc) - 3 of 4



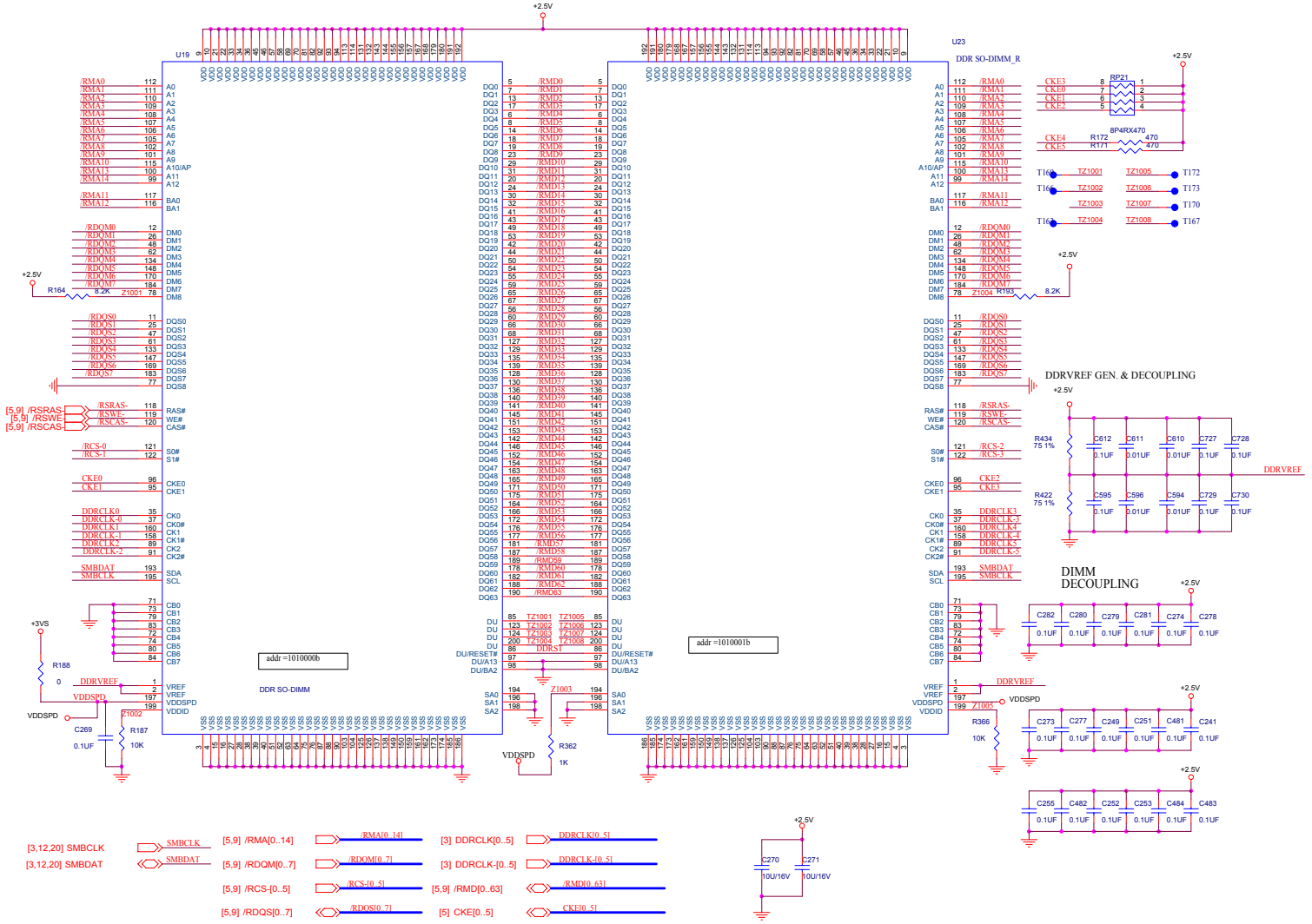
Sheet 8 of 31
650-3 (HyperZip/VGA/ Misc)
3 of 4

650-4 (Power) - 4 of 4

Sheet 9 of 31
650-4 (Power)
4 of 4



DDR SDRAM DIMM 1 & DIMM2



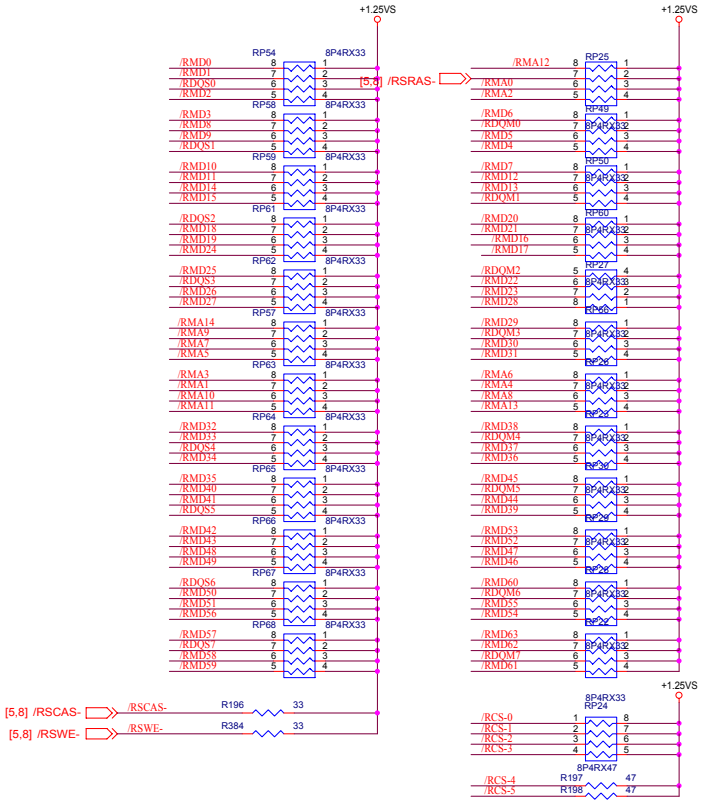
Sheet 10 of 31
DDR SDRAM
DIMM1 & DIMM2

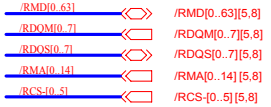
DDR SSTL-2 Termination Resistors

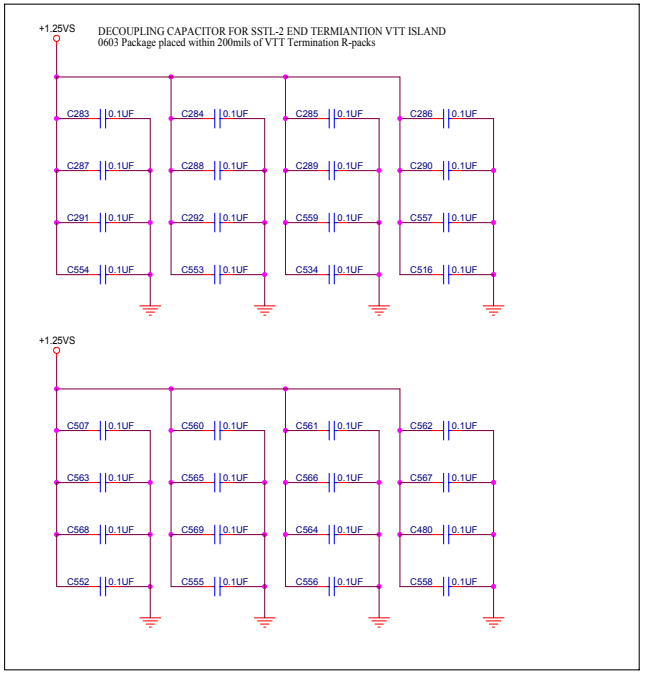
Sheet 11 of 31
DDR SSTL-2 Termination Resistors

SSTL-2 Termination Resistors

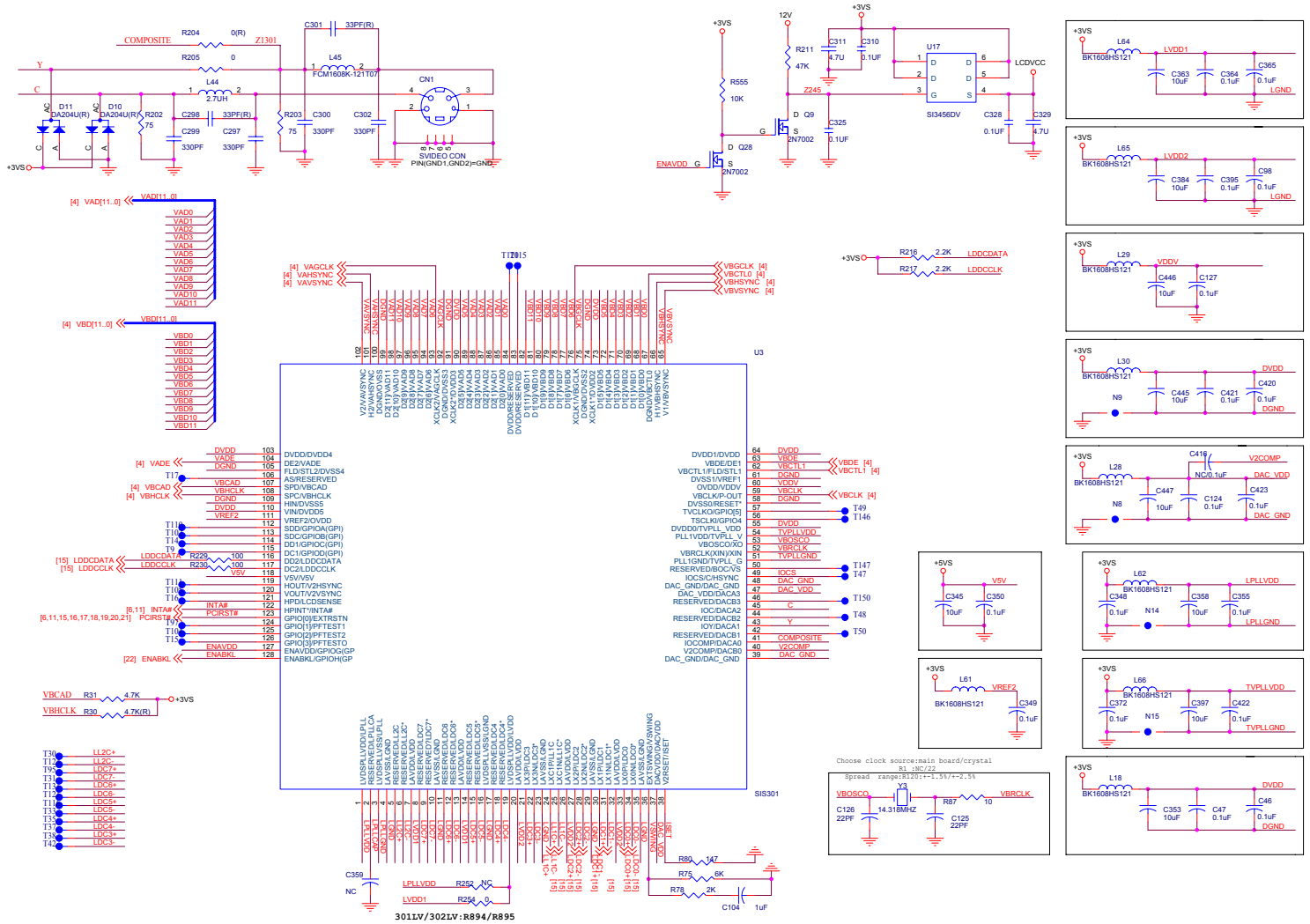
	DDR	Rs	Rtt
MD/DQM(/DQS)	SSTL-2	10	33
MA/Control	SSTL-2	0	33
CS	SSTL-2	0	47
CKE	OD 2.5V		







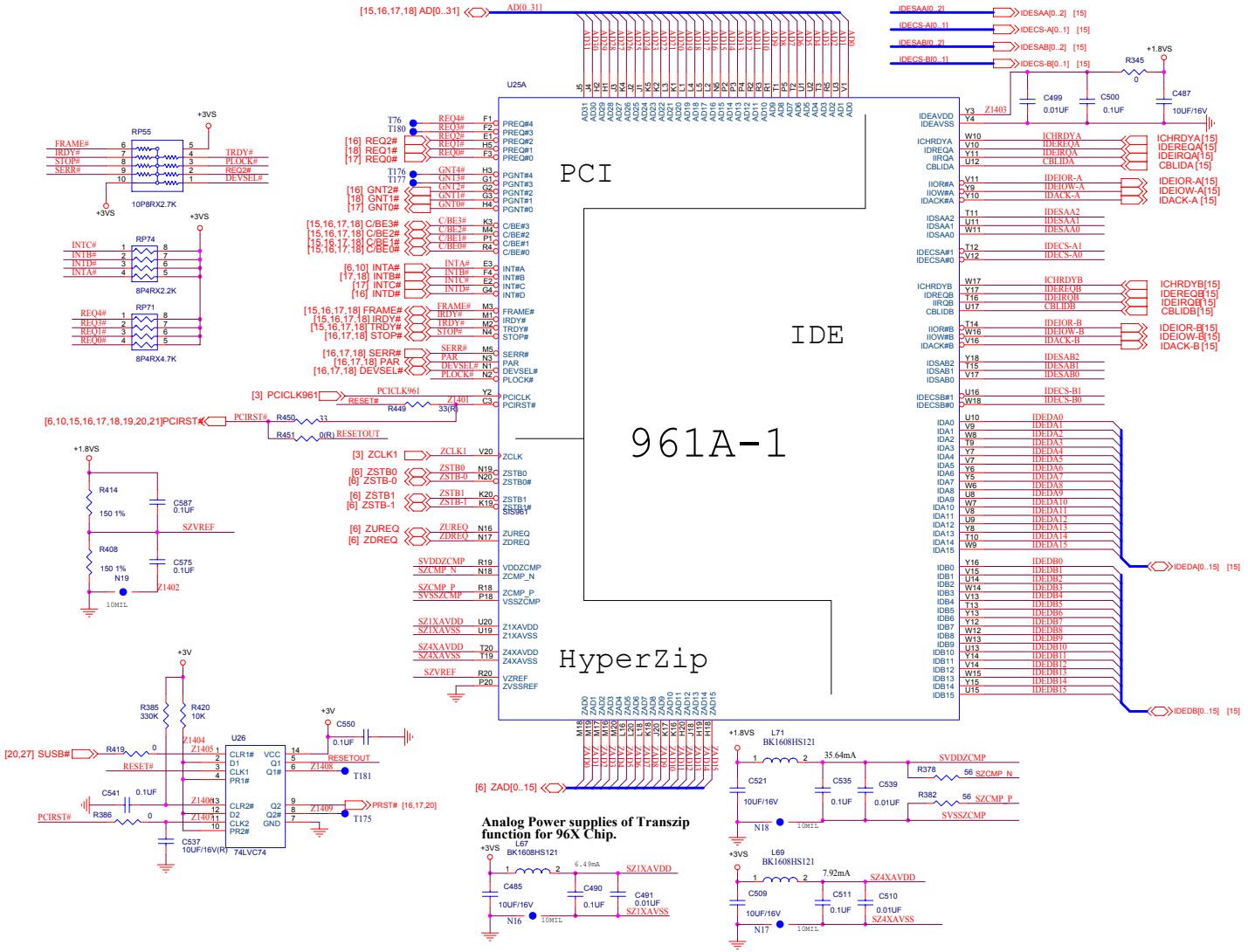
LVDS Interface (SiS301/2LV)



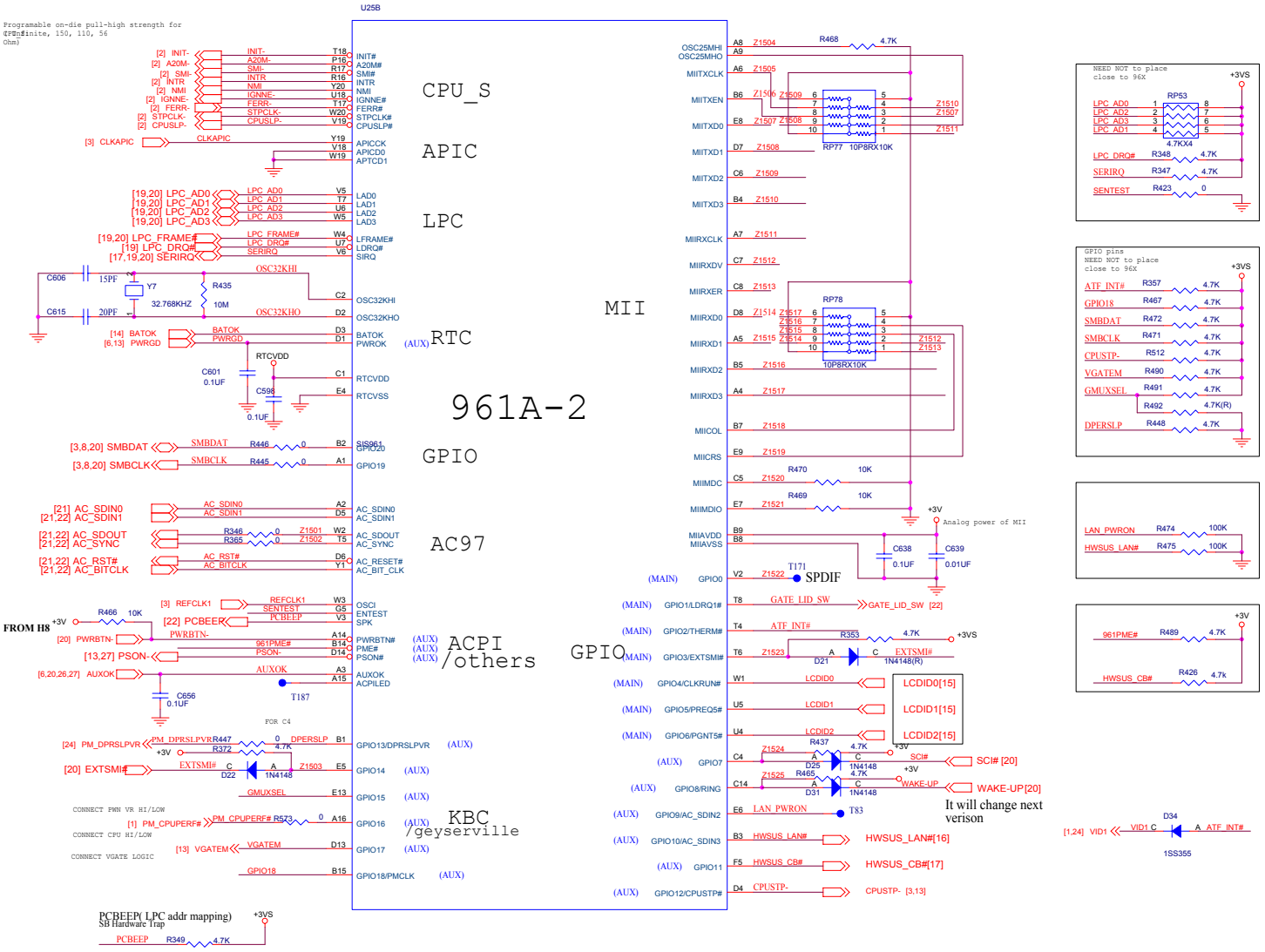
Sheet 12 of 31
LVDS Interface

961A-1 (PCI/IDE/HyperZip) - 1 of 4

Sheet 13 of 31
961A-1
(PCI/IDE/HyperZip)
1 of 4



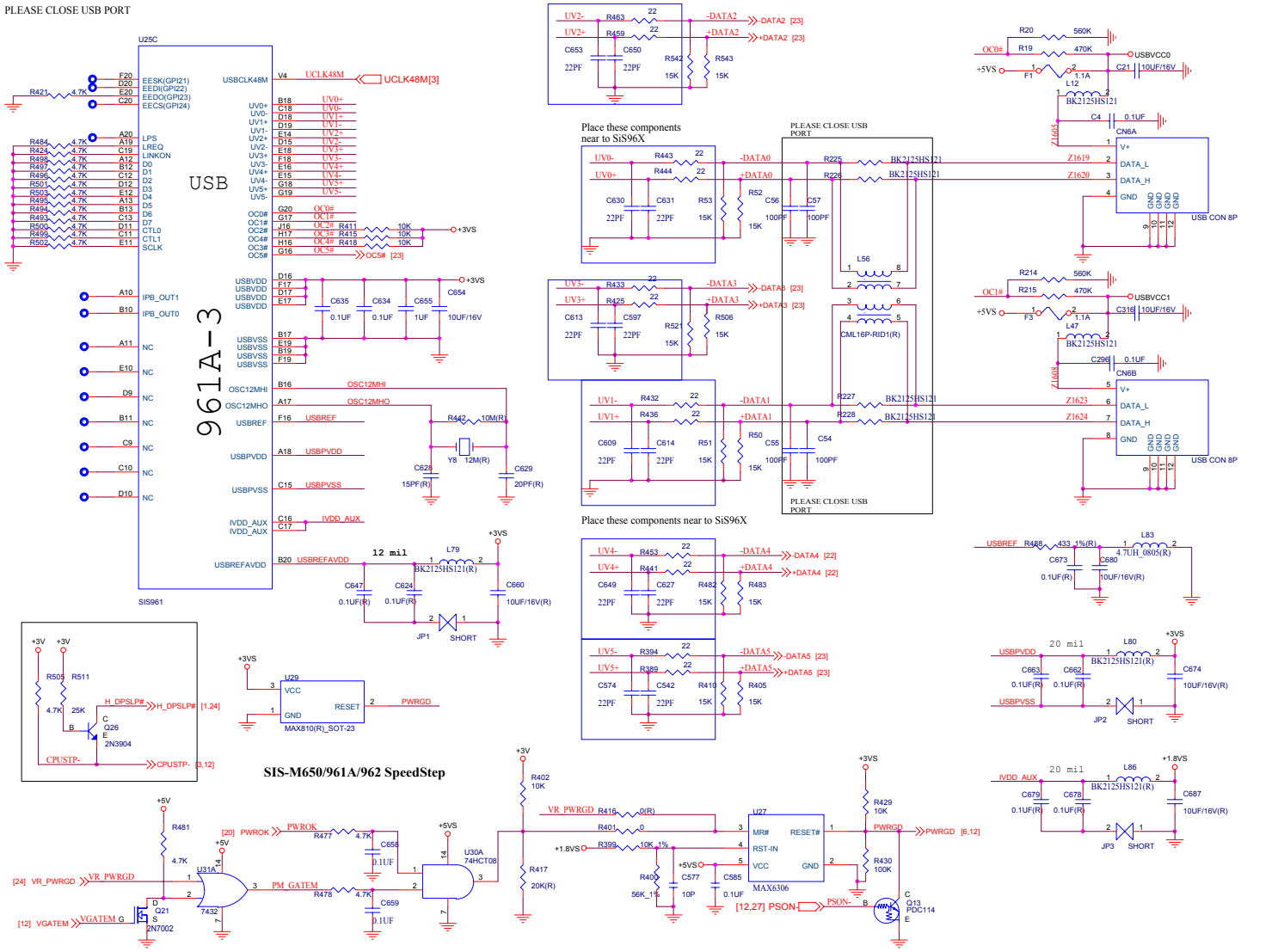
961A-2 (Misc Signals) - 2 of 4



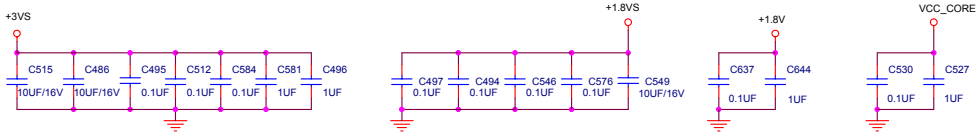
Sheet 14 of 31
961A-2
(Misc Signals)
2 of 4

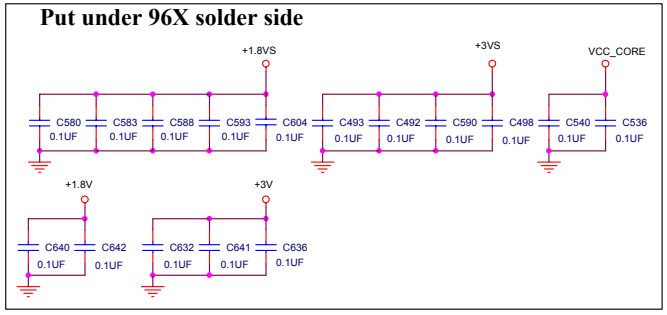
961A-3 (USB) - 3 of 4

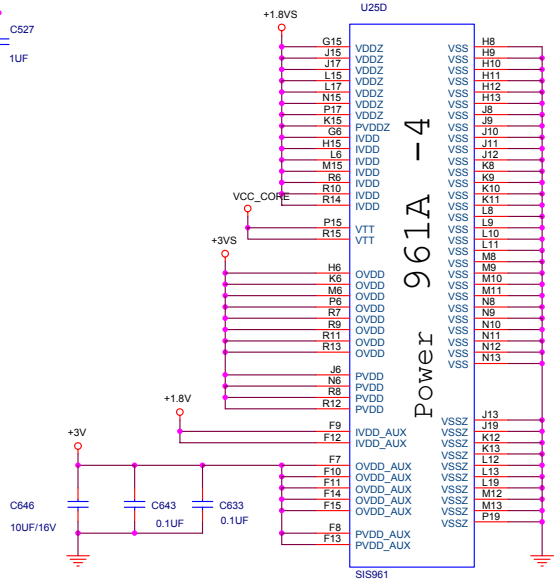
Sheet 15 of 31
961A-3 (USB)
3 of 4

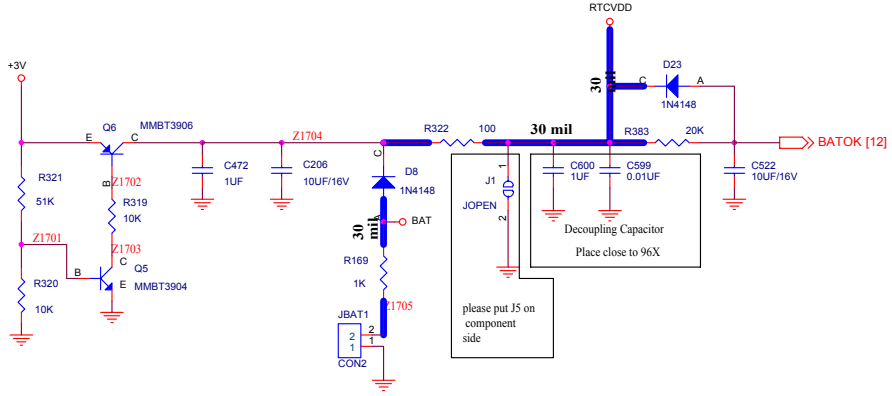


961A-4 (Power & RTC) - 4 of 4





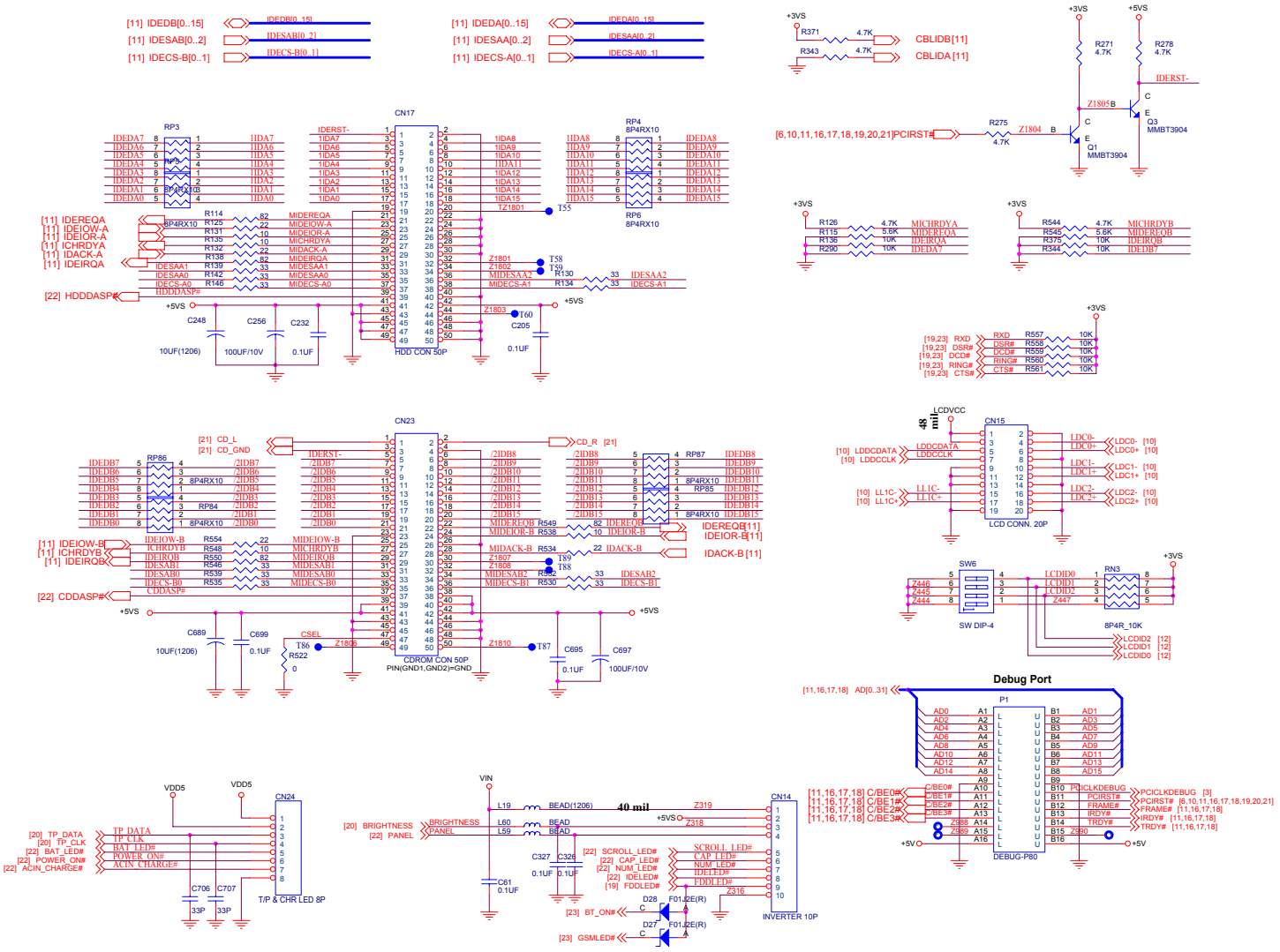




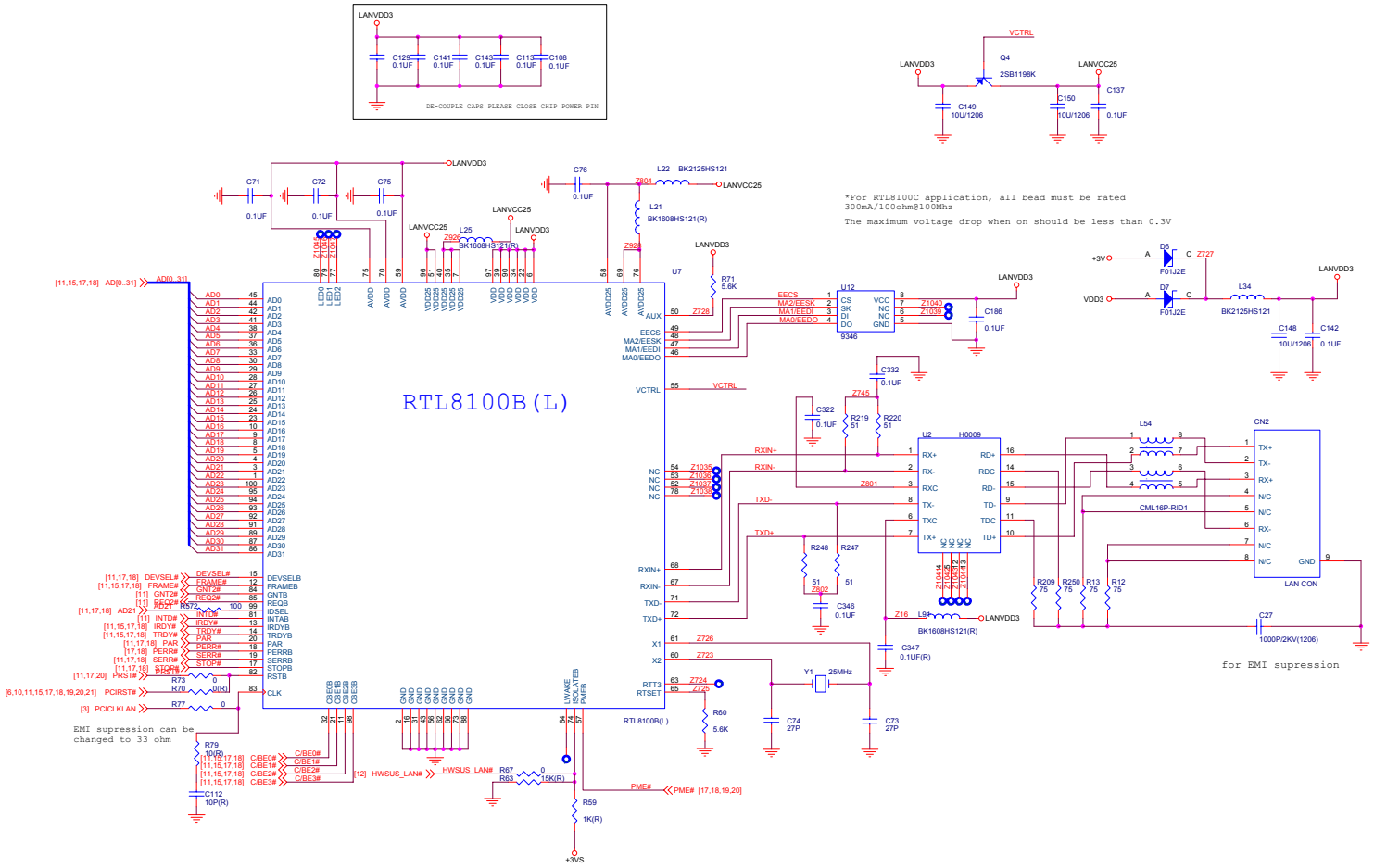
Sheet 16 of 31
961A-4
(Power & RTC)
4 of 4

IDE, LVDS, Inverter Conn

Sheet 17 of 31
IDE, LVDS,
Inverter Conn



PCI LAN RTL8100B


RTL8100B(L)
DE-COUPLE CAPS PLEASE CLOSE CHIP POWER PIN
*For RTL8100C application, all bead must be rated 300mA/100ohm@100Mhz
The maximum voltage drop when on should be less than 0.3V
EMI supression can be changed to 33 ohm
for EMI supression

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PCI LAN RTL8100B

PCMCIA PCI1410

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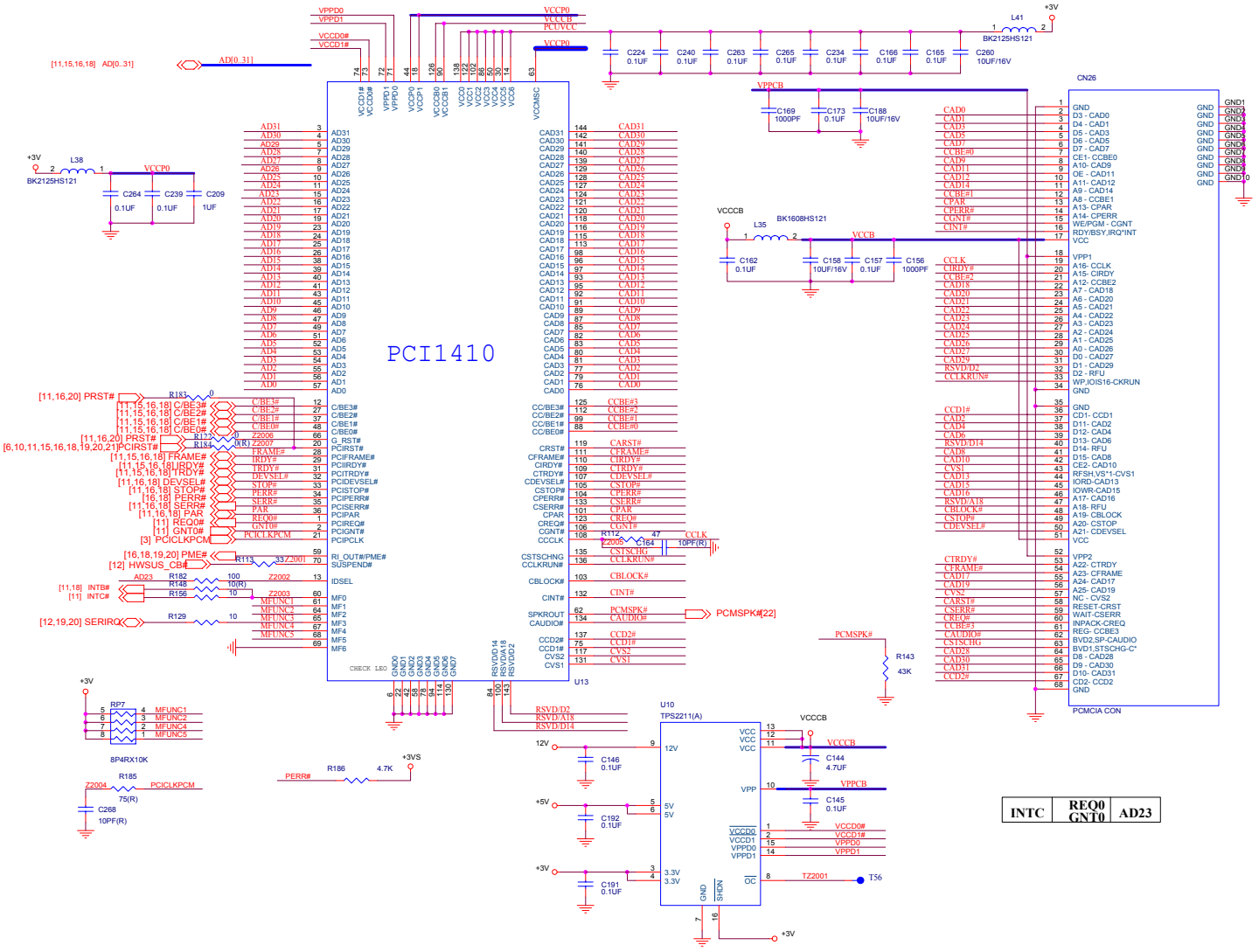
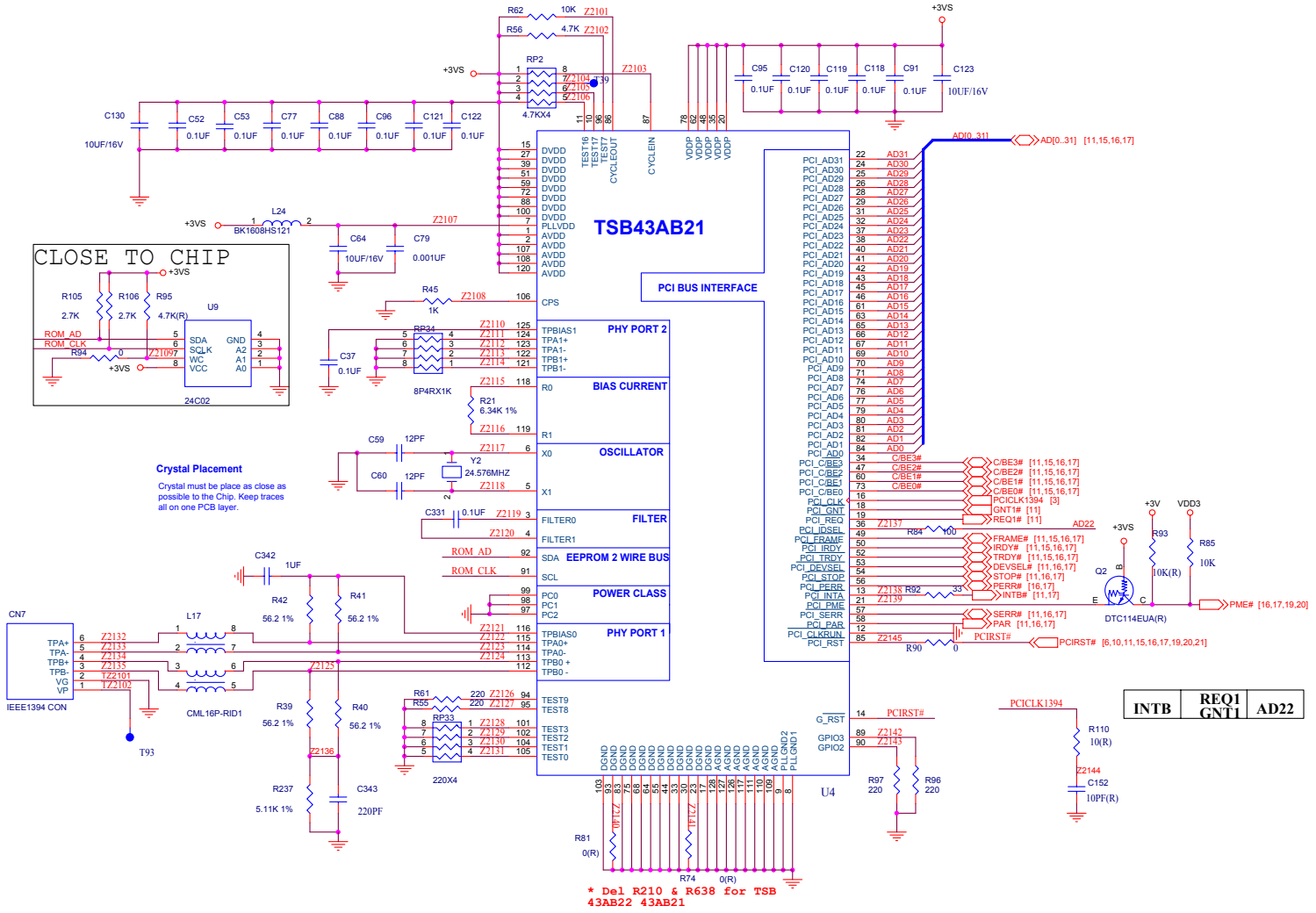
PCMCIA PCI1410



1394 TSB43AB21

TSB43AB21 1 PORT 1394
TSB43AB22 2 PORT 1394



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1394 TSB43AB21

LPC Super I/O NS393

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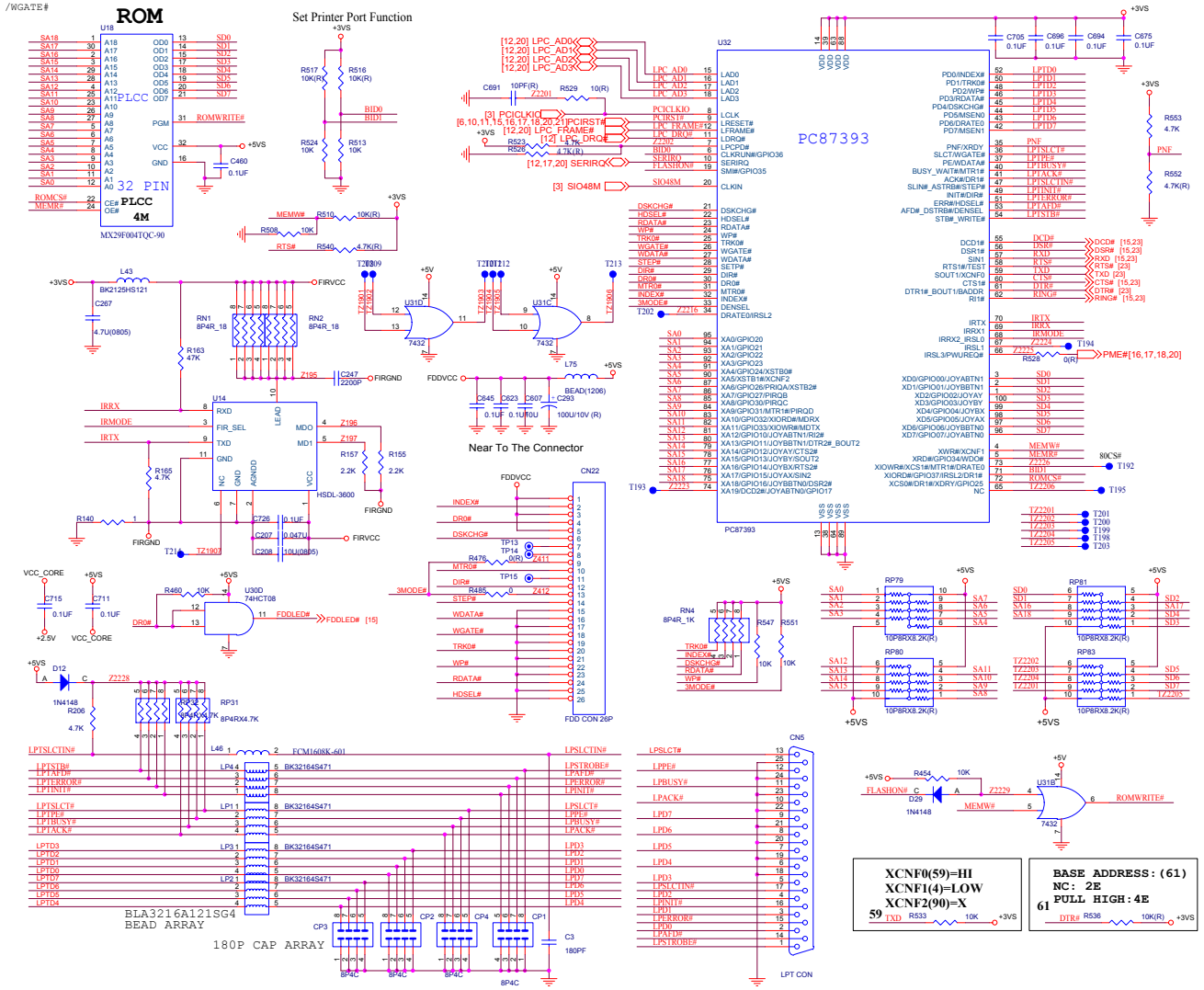
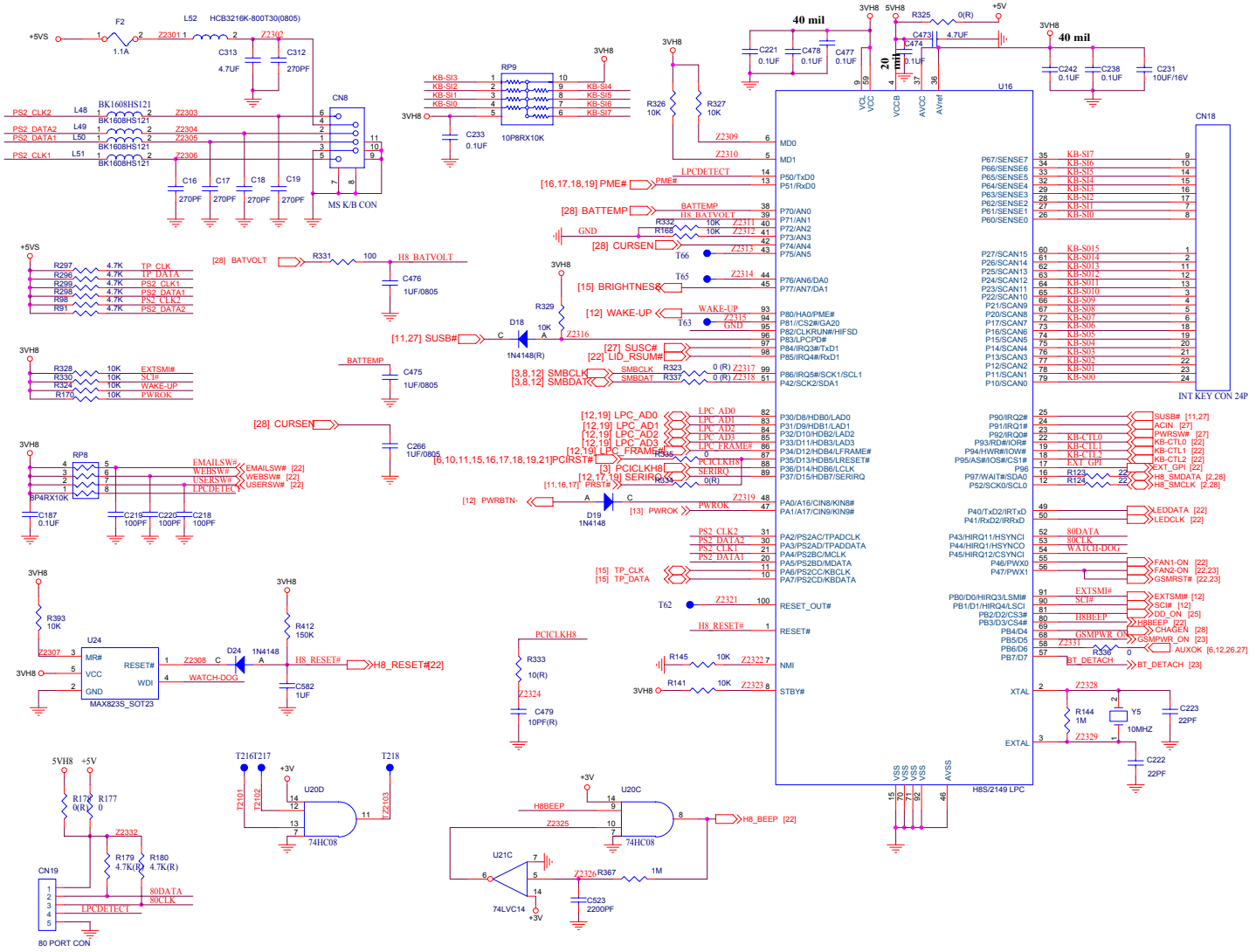
LPC Super I/O
NS393



LPC H8



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LPC H8

Audio Codec & AMP

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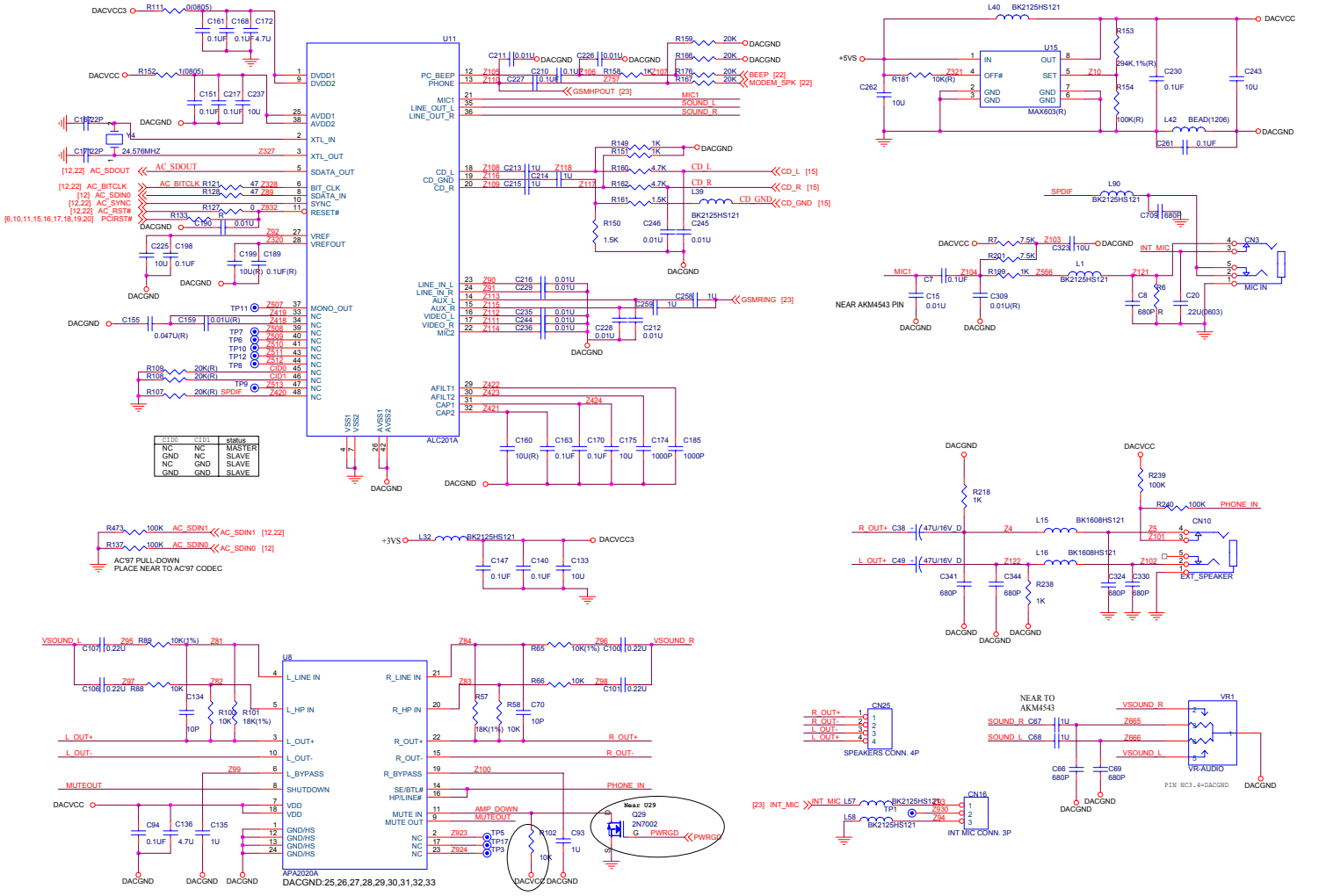
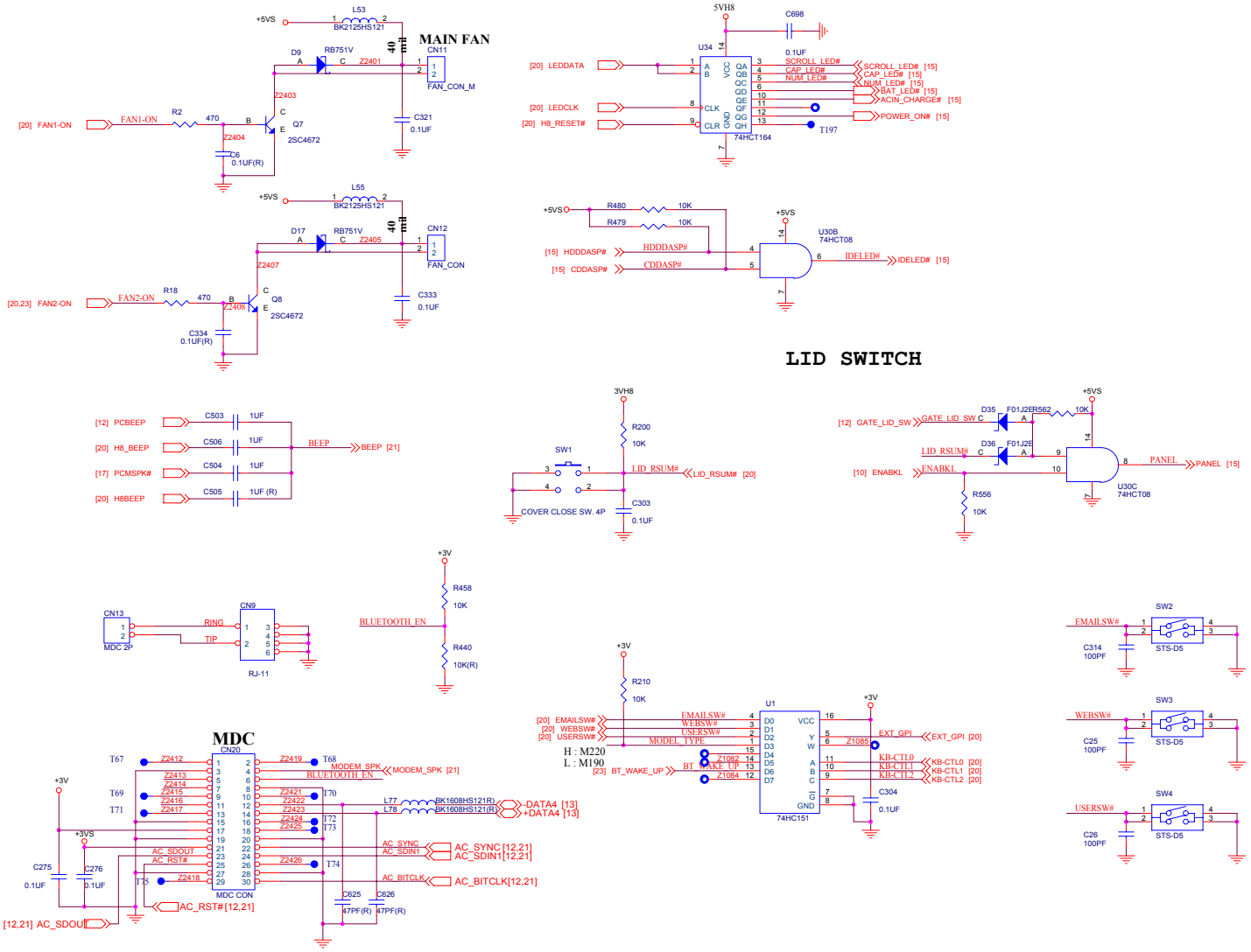
Audio Codec & AMP



Fan & Modem Conn



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Fan & Modem Conn

CPU VCORE

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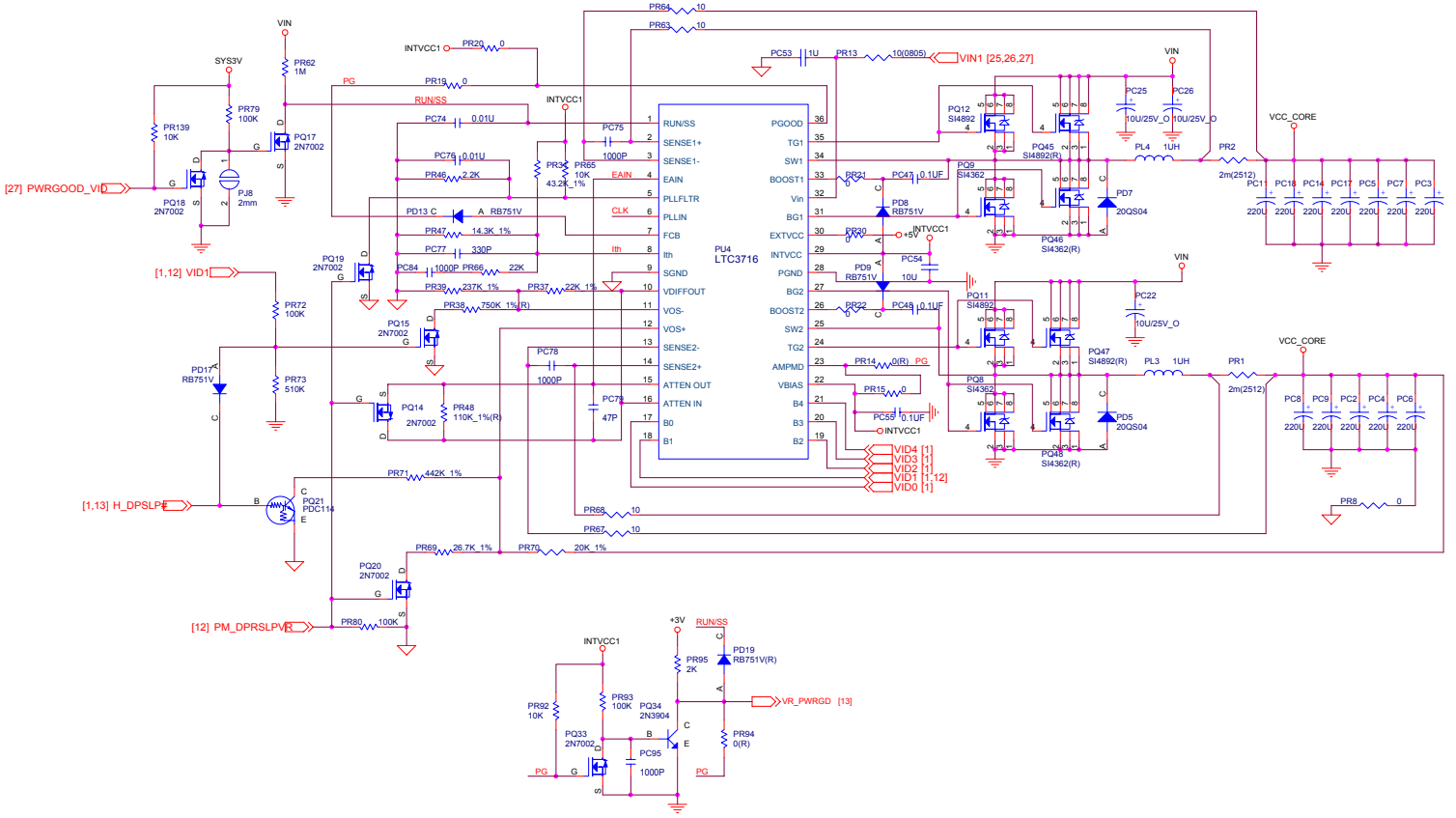
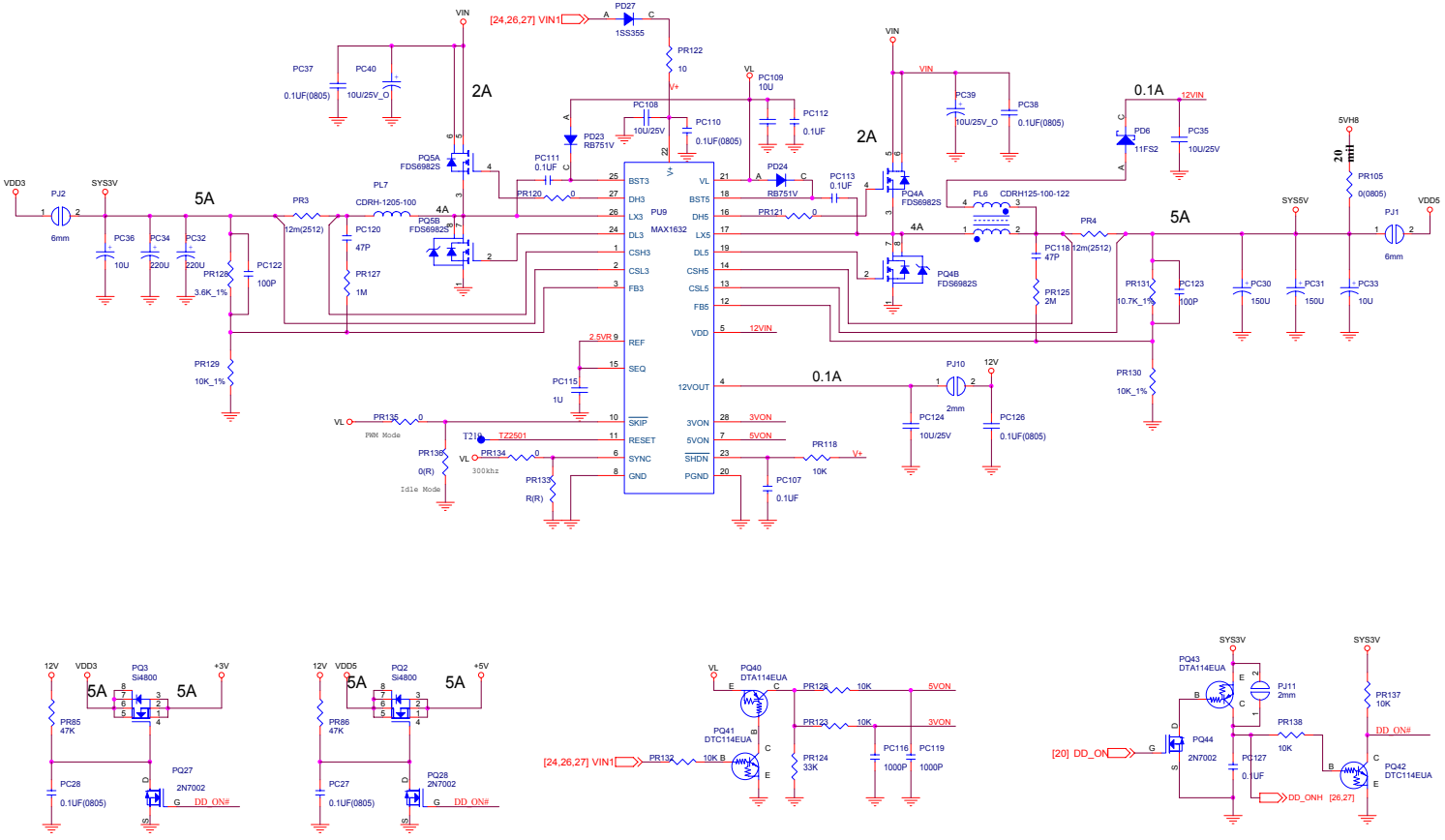
CPU VCORE



System Power 1 SCH (+3V, +5V, +12V)



Sheet 26 of 31
System Power 1 SCH (+3V, +5V, +12V)

System Power 2 SCH (+2.5V, +1.25V)

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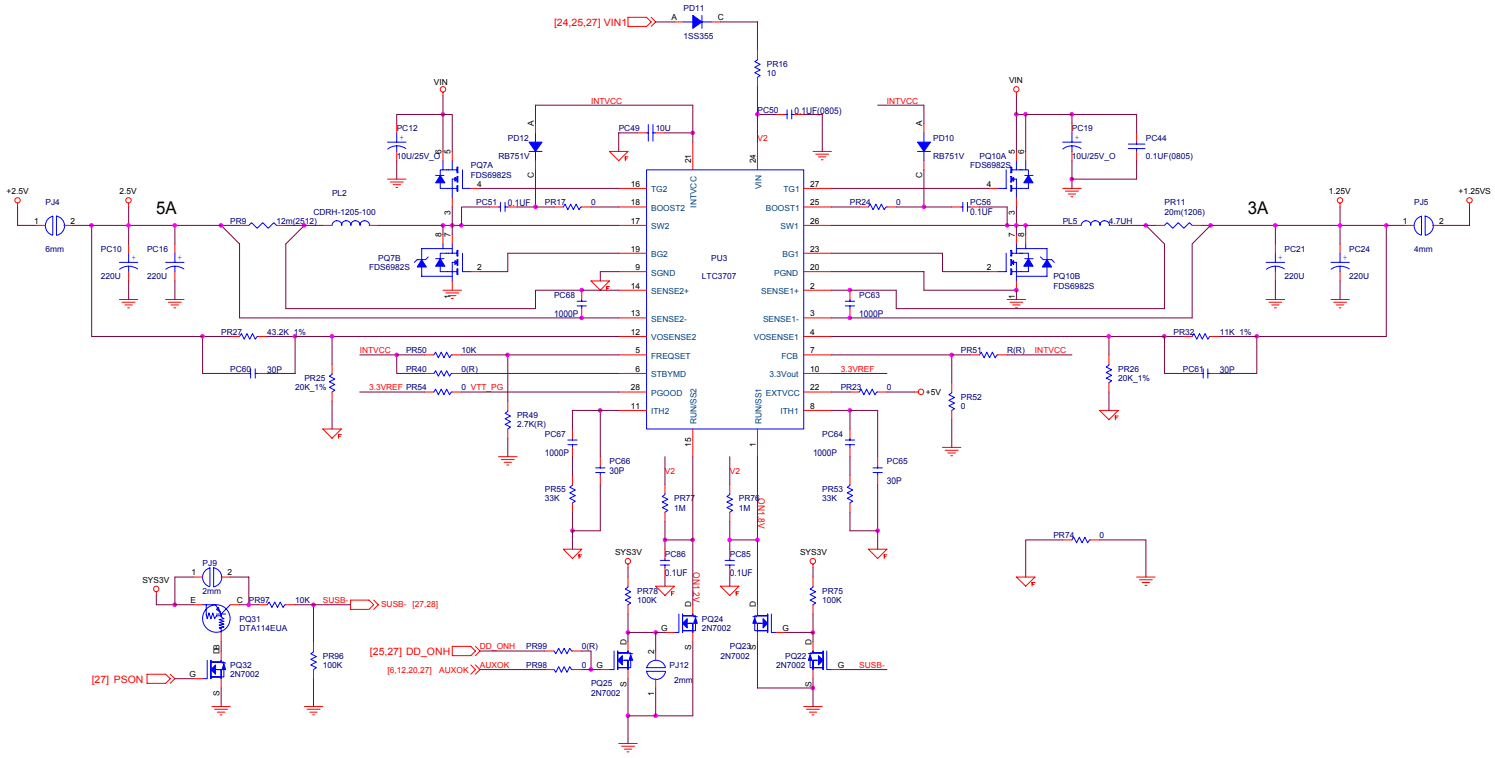
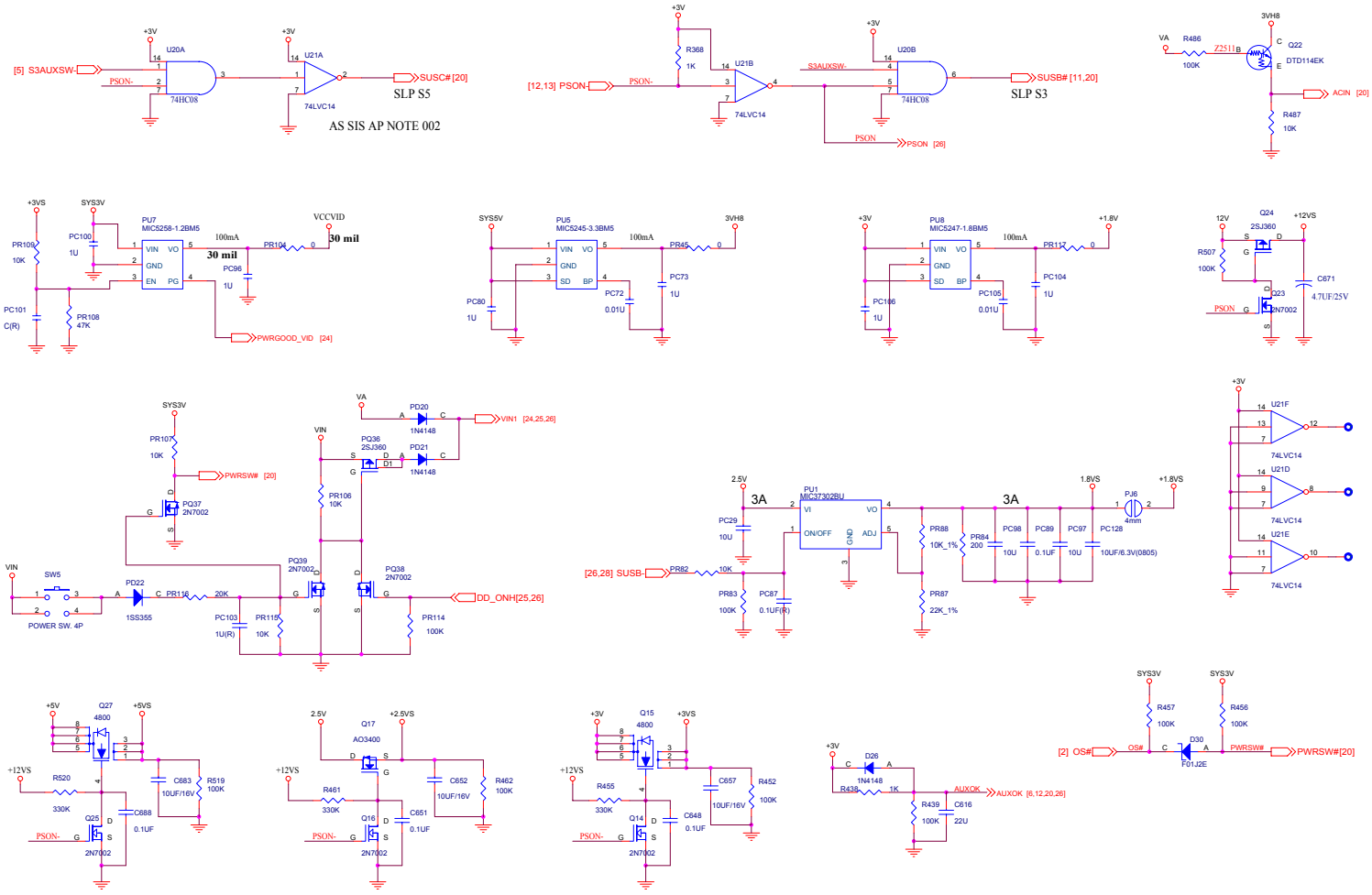
System Power 2 SCH (+2.5V, +1.25V)



+1.8V, 3VH8, VCCID, PWRSW



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+1.8V, 3VH8,
VCCID, PWRSW

Charger-PWM

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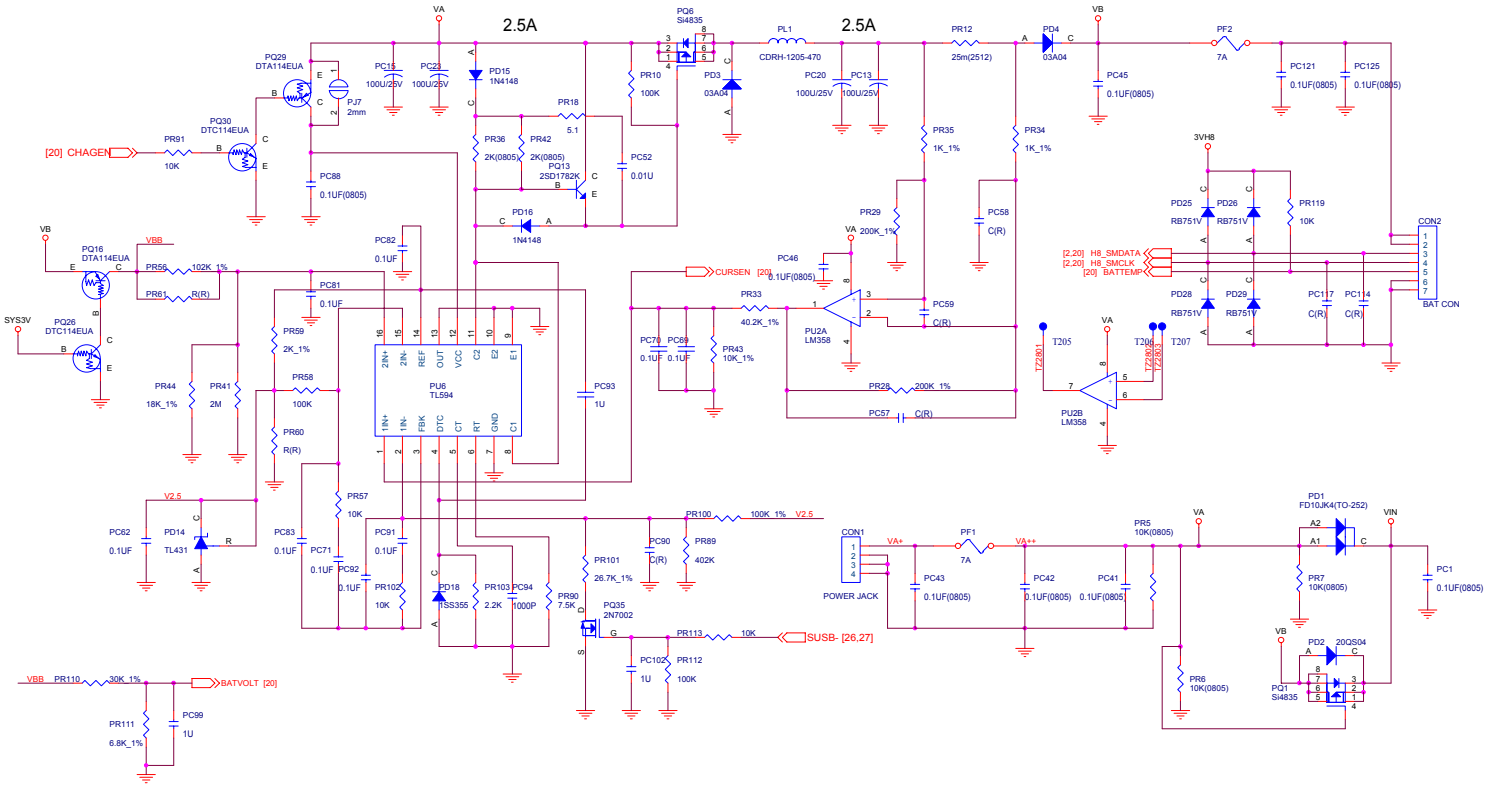
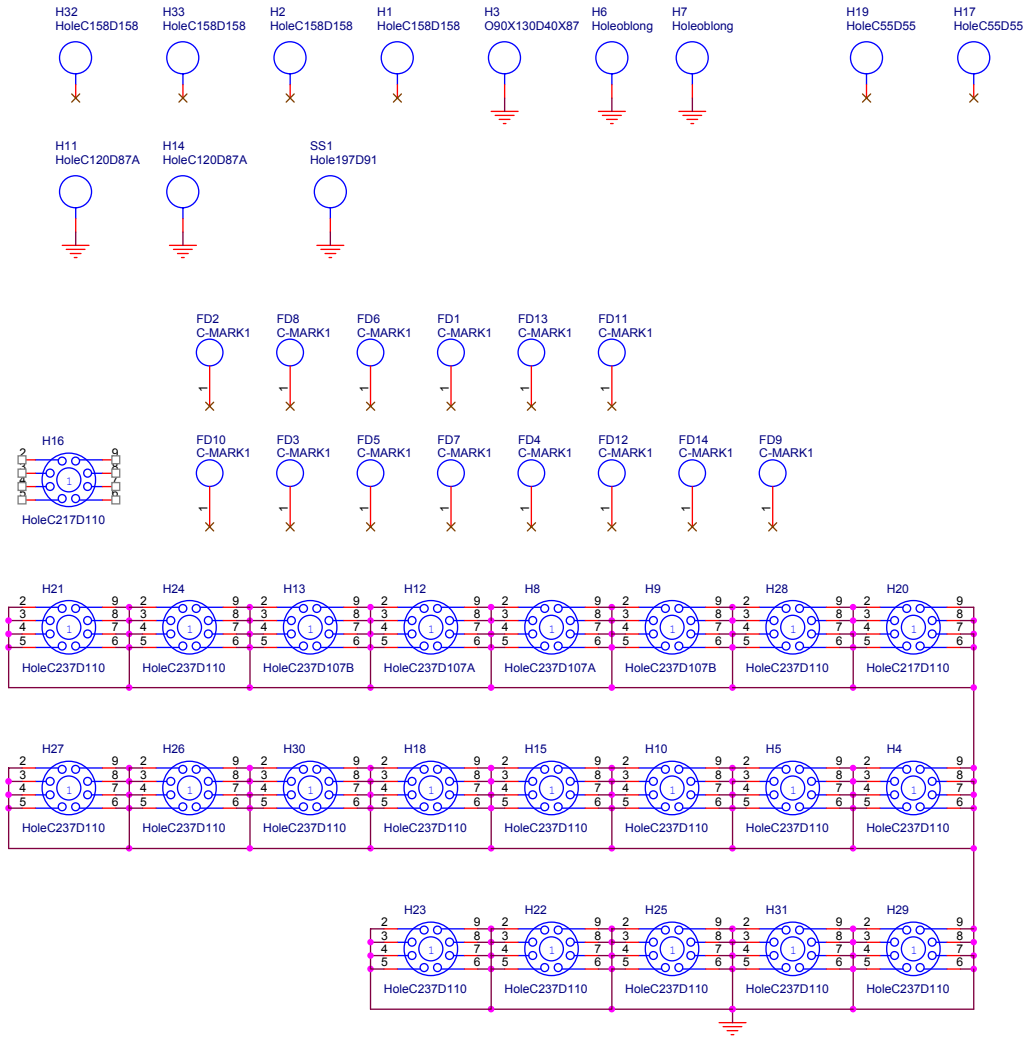
Charger-PWM



Hole



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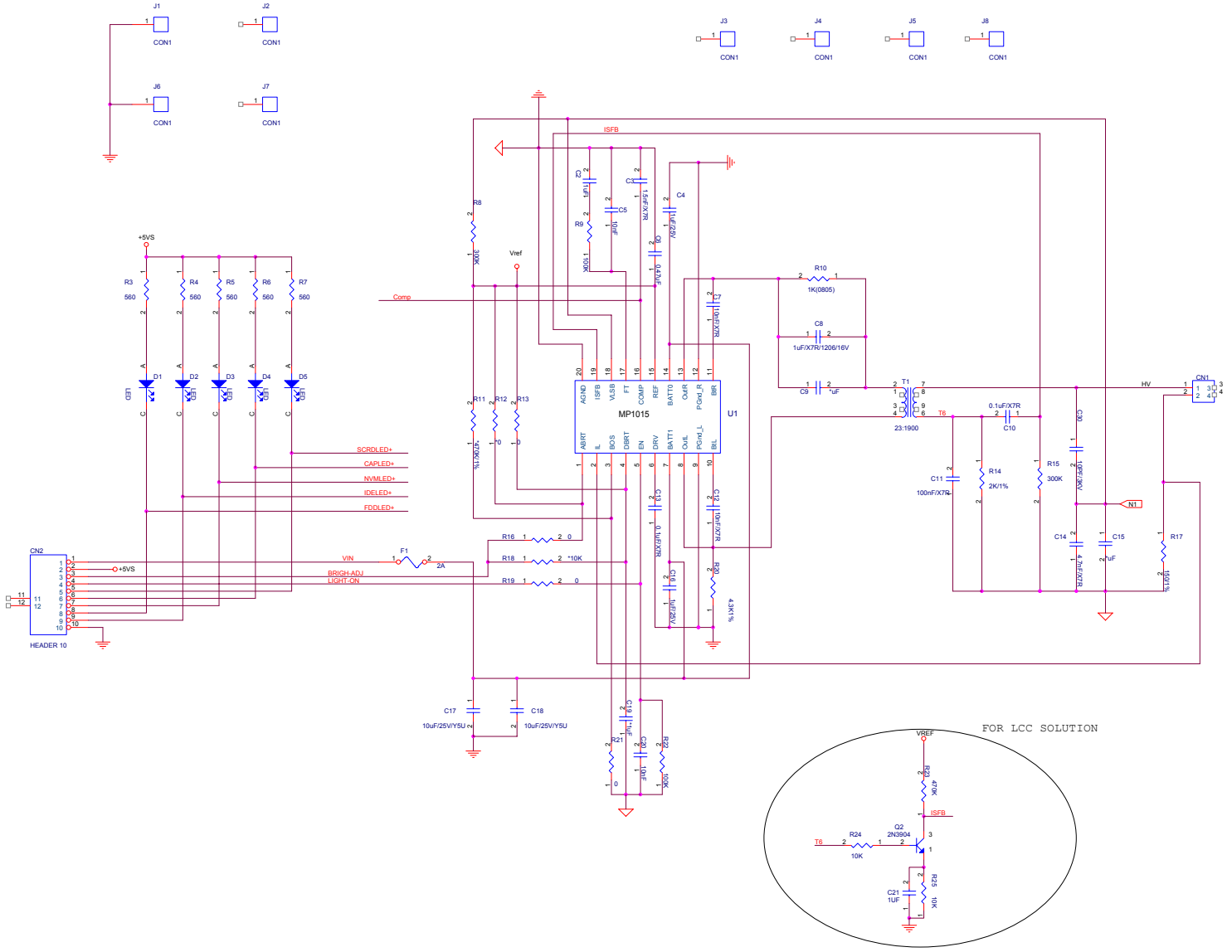
Hole

Inverter Board

Sheet 1 of 1
Inverter Board



Appendix C:Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable Floppy Disk.
- Reboot your computer from the FDD.
- Use the flash tools to update the flash BIOS.
- Restart the computer booting from the HDD.

1. Using your web browser go to **www.clevo.com.tw**
2. Choose **Download** from the menu bar at the top of the page.
3. In the **Driver** section select the model of your computer (**M22ES/M27ES/D22ES/D27ES Series**) and the driver type (**BIOS**).
4. Select **GO**.
5. Click on M22ESRxx.zip. to download the BIOS files (including BIOS refresh tools).

Unzip the file you have just downloaded on to a bootable floppy disk.

(*Some of the files you should see on this disk are: Autoexec, Platform.bin, Phlash.exe & M22ESRXX.rom)*
With the bootable floppy disk containing the BIOS files in your Floppy Drive, restart the computer.

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message "**Starting MS-DOS**". You will then be prompted to give "**Y**" or "**N**" responses to the programs being loaded by DOS. Choose "N" for any memory management programs.
2. You should now be at the DOS prompt : DISK A:\>
3. If you have chosen to extract the zipped files to the floppy disk (A:) type the following command at the DOS prompt :

   Phlash M22ESRXX.rom

4. Remove the floppy disk from the drive.

Your notebook is now running normally with the updated BIOS.